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TRANSACTIONS

OF THE

Massachusetts Horticultural Society,

FOR THE YEAR 1879.

PART I.

BOSTON:
PRINTED FOR THE SOCIETY.
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The Committee on Publication and Discussion take this opportunity to repeat what they have heretofore stated, that the Society is not to be held responsible for the certainty of the statements, or the correctness of the opinions expressed in the papers and discussions now or before published; but undertakes only to present these papers and discussions, or the substance of them, correctly. The award of a prize or gratuity for an Essay is not to be understood as implying that the Committee approve it in every particular, but only that they believe it calculated, *on the whole*, to promote the science or art of Horticulture.

William C. Strong, *Chairman.*

TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

BUSINESS MEETING.

SATURDAY, January 4, 1879.

A duly notified stated meeting was holden at 11 o'clock, Vice-President C. O. WHITMORE in the chair.

CHARLES W. ROSS, of Newtonville,

was duly elected a member of the Society.

John C. Hovey, from the Committee of Arrangements, read the Annual Report of that Committee, which, after discussion by several members, was recommitted for amendment.

The following appropriations for the year 1879, having been recommended by the Executive Committee, were unanimously voted:

For Prizes, ...	$3,050
For the Library Committee, for the purchase of magazines and newspapers, binding of books, and incidental expenses of the Committee, .	200
For the Committee on Publication and Discussion, ...	150
For the expense of entertainments for the Committee of Arrangements, ...	300

The Chairman of the meeting announced that the Executive Committee had appointed Edwin W. Buswell, Treasurer, and Robert Manning, Secretary, of the Society.

On motion of Marshall P. Wilder it was unanimously

Voted, That all matters pertaining to the celebration of the Semi-Centennial Anniversary of the Society, be referred to the Executive Committee, with full powers.

The Secretary announced, on behalf of the Committee on Publication and Discussion, that the meetings for discussion the present season would be commenced on Saturday, January 11th, with the reading of a paper by J. W. Talbot, on the Influence of the Stock on the Graft.

On motion of C. M. Hovey, further time was allowed to the Treasurer to prepare his report.

Voted, That when this meeting adjourns it be for two weeks from this day.

Adjourned to Saturday, January 18.

MEETING FOR DISCUSSION.

Saturday, January 11, 1879.

The first meeting for discussion for the season was holden today at 11 o'clock, William C. Strong, Chairman of the Committee on Publication and Discussion, presiding. Josiah W. Talbot read the following paper on the

Influence of the Stock upon the Graft.

A thorough investigation of this long neglected theme, would, I think, lead to an essential improvement in the quality of fruit. That the original apple and pear have been wonderfully improved, will be admitted; but are we prepared to say they may not be still further improved? Culture, grafting and its kindred operations, and cross-fertilization have all assisted in producing this grand result. The precise influence of each of these causes may not be so easily determined. Culture undoubtedly increases the size and quality of natural fruit, without essentially changing its peculiar characteristics. Cross-fertilization has produced new and improved varieties. Grafting has extended these varieties, but, it is generally

believed, has not changed them. In accordance with this opinion J. J. Thomas,* in 1856, said that grafting gave us *perfectly unaltered* the sort selected. President Clark† of the Massachusetts Agricultural College, in a report says it is doubtful whether the character of the fruit of the stock ever affects the fruit of the graft, and that experiments have produced no convincing results. On this supposition nurserymen and orchardists have proceeded, sowing seeds indiscriminately, and grafting without any regard to the effect which the stock may produce on the fruit. Now I believe this statement of Mr. Thomas is an error, which facts will refute. It arose from the apparent result of ordinary grafting, and I think will be abandoned on a more careful examination. Suppose we graft Russet scions into four different bearing trees, and find all bear Russets; we naturally say with Mr. Thomas, that grafting gives us *perfectly unchanged* the sort selected, or that the character of the fruit of the stock does not affect the fruit of the graft. But a critical examination of the fruit of these four Russet trees discovers a marked difference. They differ in size, flavor, texture, and in keeping qualities, yet they all grow on similar soil, with the same culture, and were grafted with similar scions. Whence the difference in the fruit? Further examination of the grafted trees, discloses that the first was grafted on a Baldwin, the second on a Red Astrachan, the third on a Summer Sweeting, and the fourth on a Crab. We are familiar with the fruit these trees have borne, and, on a critical examination of the fruit, find that each stock has marked its fruit with its peculiar characteristics. Now if this is a fact the statement that "grafting gives us *perfectly unaltered* the sort selected," is an error. It is a conclusion drawn without consulting *all* the facts.

The argument here rests on the statement that there will be a difference in the fruit of trees thus grafted, and here is exactly where the matter must be settled. If such a difference cannot be demonstrated we give up the controversy. But before presenting the facts to prove it, let us consider the nature of grafting. We all know something of the wonderful power of the scion to change the character of the wood, the form of the leaf, and the character

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*United States Patent Office Report, Agriculture, 1856, p. 315.

†Eighteenth Annual Report of the Massachusetts Board of Agriculture, 1870–71, p. 294.

of the fruit which the grafted stock is to bear. We know that the same stock will bear several varieties of fruit. For instance, on the Plum we may graft the Apricot; on the Apricot the Peach; and on the Peach the Almond. Thus we have four kinds of wood, leaves, and fruit, on the same stock, all nourished by a common fluid and growing under the same influences. Now the most scientific man in the world, with all knowledge of vegetable chemistry and physiology, cannot tell why or how each of these kinds of wood, growing in the same stock, will draw from the same source precisely what is required to form its peculiar kind of fruit. He can only say it is by an *inherent power* in the wood. God made it so. That is the limit of his knowledge in that direction. But we can notice the operations of that inherent power and may obtain light on the subject, and the question which must interest us is, Can we grow as good plums, apricots, peaches, and almonds on one stock as we can on several? We often graft several kinds of apples on one tree, but are they as good as can be grown on several trees? I think experience and observation will answer this in the negative, and teach us that the quality of grafted fruit depends somewhat upon the character of the stock. It will be generally conceded that the health and vigor of the stock, tend to the health and vigor of the graft. But there are exceptions to this. Experience shows that there must be a certain relation or affinity between the stock and the graft in order to have the graft succeed. It has been stated that the Iona grape, grafted upon a healthy Concord, will soon sicken and die, the stock often dying with it. The pear is sometimes grafted on the apple and will bear fruit for a year or two, but it soon perishes. Experienced men say it is difficult to graft certain pears on the Dix stock. Some kinds of pears must be double worked in order to have them succeed in perfecting their fruit. What do such cases teach but the influence of the stock on the graft? But on this point we deem ourselves fortunate that we can quote the authority of one of the oldest and most distinguished American horticulturists, Hon. Marshall P. Wilder. He says, "The affinity of the stock to the graft is of immense importance to the happy union and success of both. Some unite as if ordained by heaven to be joined, while others resist all the appliances of art. We have seen trees made sick by the insertion of an uncongenial scion, and finally destroyed. It is from the analogy of the stock and graft that healthy vigor results, and unless this analogy

is sufficiently close, it is impossible to obtain fruits in perfection."* Here, certainly, is recognized the influence of the stock upon the graft in producing perfect fruit. But in order to make any advance in the argument, we need to specify some particular in which the graft is affected by the stock—some quality which all will recognize. There is no distinction in apples more generally and easily understood than that of sweet and sour. If a pleasant apple, grafted on a tree bearing sour fruit, becomes more acid, we may say the sour stock affects it. If when grafted on a sweet apple tree it becomes less acid, we say again the sweet stock affects it. The Porter well illustrates this. I will now name several of many cases which might be adduced, where the evidence on this point is direct, positive, and unmistakable. And here let me remark that this evidence was not given to prove any theory, but simply as *facts*, and if all orchardists will notice and testify, we shall soon have overwhelming evidence.

S. Fuller, of Sharon, states that a tree on his place, bearing very sour fruit, was grafted with Porter scions from a neighboring tree; and almost every one, on eating the fruit, remarked at once how much more acid these Porters were than the others. They were so sour that the tree was cut down.

A fruit grower in Walpole asserts that he has often grafted Porters upon sour and sweet apple trees, and invariably found the flavor of the fruit affected by the different trees.

Joseph Bailey, of Dedham, says he has known this for years and never thinks of grafting a Porter on a sour apple tree, but that if he wants a pleasant Porter he grafts upon a sweet variety. He says the same is true of Baldwins.

D. Mowry, Chairman of the Fruit Committee of the Franklin County Agricultural Society, in his report for 1871, says: "I find that fruit, grafted on a strong, rapidly growing stock, entirely different from the scion, loses some of its original flavor, or, speaking more concisely, its flavor is *modified*." He then speaks of choosing the modifiers in order to improve our fruits.

Washburn Weston, of Winthrop, a successful fruit grower and a very close observer, grafted a Porter into a tree bearing large but very sour fruit. The result is an apple so sour that the Fruit Committee of the Marshfield Agricultural Society, after pronouncing

* Proceedings of the American Pomological Society, 1856, page 21.

them remarkably fine Porters, on tasting them at Mr. Weston's request, decided they were not Porters, being too acid, with a different flavor. They are called the Cook's Favorite. Other kinds of apples are affected in the same way.

S. B. Pullen, of Norwood, testifies that he had a tree bearing small but very sweet apples—so sweet that the children called them sugar plums—but so small as to be worthless. Into this he grafted the Orange Sweet and found the fruit much sweeter than other Orange Sweets. The difference was unquestionable.

The same gentleman relates another remarkable case. Several years since he brought some scions from a Sweet Pumpkin Russet which had fruited several years on his place in Maine. A part of these scions he grafted into a neighbor's tree, and the remainder into a very thrifty Roxbury Russet on his own land. When they fruited, his neighbor's tree bore Sweet Pumpkin Russets, but his own bore apples the same in size, form, and color, but as sour as the Roxbury Russet.

Another similar case is given by Mr. Weston, to whom I have before referred. Several years since he was acting as gardener for Dr. Ira Warren, on the place he now owns in Winthrop. The Doctor, wishing to have some of the fruit which he knew in his boyhood, growing on his own place, brought some Hightop Sweeting scions from Marshfield, and requested Mr. Weston to graft them into a Red Astrachan, as he had more of that variety than he needed. When the graft fruited, to the surprise of all, it bore a red apple with the form and size of the Red Astrachan, but very sweet, and having the peculiar flavor of the Hightop Sweet. And here let me remark that scions taken from that tree and grafted into other trees bear the same kind of fruit, thus showing that grafting has produced a new variety, and one which I think will be very desirable. Now this fact is right in our midst and can be substantiated by any amount of evidence, and the fruit will speak for itself in its season. So marked is this case that the Fruit Committee of the Marshfield Agricultural Society last autumn, did not hesitate to call the apples Red Astrachans, and were convinced of their mistake only when they tasted the fruit and found it sweet like the Hightop. That there could be no mistake about the scions, is evident from the fact that there is no tree known, bearing such fruit from which the scions could have been taken. Before finishing this paper I will try to account for this phenomenon.

Another case is related by a member of this Society long known as a successful nurseryman and orchardist,—Francis Marsh, of Dedham. Many years since he grafted the Hubbardston Nonsuch into a Hightop Sweet and a Roxbury Russet. The Hubbardstons which for many years have grown on the Hightop, are very different in flavor and texture from those borne by the grafts on the Russet, and will not keep so long by two months. Here the soil and culture are the same. What makes the difference but the trees on which they were grafted?

Another case is related by one who has given his best efforts to horticulture, and whose testimony will carry great weight,—Fearing Burr, of Hingham. He had a tree bearing a medium sized apple which perished on the tree before it was fairly ripe. To save the tree and overcome the difficulty, he grafted it with the small English Russet, which is a remarkably long keeper. The grafts grew well and bore fine Russets, but to Mr. Burr's disappointment they inherited the peculiarity of the tree and rotted so badly that they were fit only for early cider.

Now do not these cases, right here in our midst, and presented by men whose testimony no one will doubt, sufficiently demonstrate that the character of the fruit of the stock essentially affects the fruit of the graft? But this is no new doctrine. In Miller's Gardeners' Dictionary, under the head of Pyrus, and in his abridged Dictionary under the head of Malus, we find the same idea, more than a century old. He says "The Golden Pippin is almost peculiar to England, and in some parts of England it is not so good as could be wished, which in some measure is owing to their being *grafted on free stocks*, which enlarges the fruit, but renders the flesh less firm, the flavor not so quick, and is apt to be dry and mealy; therefore it should always be grafted on the Crab stock; the fruit will be better flavored and keep longer." Is not this precisely the testimony we have now?

A writer in the "Massachusetts Agricultural Repository," Vol. II., for 1804, page 50, said, that "Grafting not only increases the restraint put upon dwarfs as to the growth, but serves to intermix the qualities of fruits." In the same work for 1810, pp. 69 and 79, a writer says "an apple is said to exist in New York, in America, which is asserted to be sour on one side of it and sweet on the other side, and to have been produced by slitting a scion of a sour apple, and another similar one of a sweet apple,

taking care to cut the buds of each scion with a very sharp knife exactly in half, and by applying them, and binding them nicely together, and then engrafting the double scion on a tree." In the same work such an apple is referred to in a quotation from Mr. Bradley, who attempted to explain it by cross-fertilization. This curiosity, which is well known to some of us, is referred to in the "Gardener's Monthly" for 1869, p. 358, by P. Barry, who doubts its being obtained by bud-splitting or by crossing, but would sooner think a sweet apple scion was grafted on a sour stock.

Again, what is the process called ennobling fruit, but a recognition of the effect of the stock upon the fruit of the graft? One choice variety is grafted upon another that the quality of the fruit of the stock may be imparted to the fruit of the graft. So of double working. It is based on the same idea.

A few words in regard to sports. I recollect some apples brought here in 1869, and reported in the TRANSACTIONS of the Society, by Nathaniel Whiting, of Amherst, N. H., formerly of Dedham, who stated that he grafted a Baldwin scion upon a seedling. In 1854 the tree was twelve or fourteen inches in diameter, and had borne Baldwins for many years. A shoot came out about twenty feet from the ground which in 1868 bore the fruit exhibited, and which he proposed to call Whiting's Sport. They were between Baldwins and Russets. It is easy to call such cases sports. But when we consider that nature never acts except in accordance with fixed laws, the term *sport* is not satisfactory. What are sports, so called, but the operations of natural laws which we cannot comprehend? We have in this respect advanced further in the animal than in the vegetable kingdom. When the farmer finds a colt unlike both its parents, bearing the unmistakable features of the old Black Hawk, he no longer calls it a sport, but, looking up the pedigree of the parents, away back,—it may be, three or four generations,—he finds a Black Hawk ancestor. This explains the so-called sport. So in fruit. When we better understand the relation between stock and graft we shall better explain vegetable sports. We shall often see the stock cropping out in the graft.

I have thus far endeavored to present facts based on reliable testimony. Let me now attempt an explanation of some of them, trusting that it may lead to a more thorough examination than I can give.

It will not be controverted that the crude sap ascends from the

roots through the sap-wood to the extremities, terminating in the buds, and thence passes into the cambium layer. It will be remembered that the cambium layer envelopes every living part, and separates, or lies between the sap-wood and the bark. In this layer all the buds originate, and all growth is made. Nothing grows outside of it except the bark. As the buds expand and form shoots, they carry their envelope, the cambium layer, with them. As in animal life there is no connection between the arteries and the veins except at the extremities, so the ascending sap has no connection with the elaborated sap in the cambium except at the extremities in the buds. The leaves, which are the receptacles of the crude sap, throw off superfluous matter, and in their wonderful laboratory supply carbon and other elements from the air, preparatory to its entrance into the cambium layer, whence it passes down, for the building up and nourishing the whole tree. But in the spring, before the leaves are grown, the crude sap enters the cambium near the base of the bud without elaboration. How is this *apparent* lack obviated? Nature never leaves an emergency unprovided for. In the egg is stored all the nutriment the chick requires for its growth while in the shell, and even for a day or two after it is hatched, until it is able to find its own food. So in the tree. Before the temporary death of winter, Nature, from her laboratory in the cambium, stores in the seeds, buds, roots, and other receptacles, whatever is needed to revive vegetation and sustain it until the new leaves are ready to commence their work of elaboration. I think the first sap ascending from the roots in the spring and passing into the cambium through the buds without elaboration, has little more to do than to carry up the nutritious elements stored in the roots, press open the thin cambium layer, dissolve the nutritive matter there stored, and thus commence the work of vegetation. As this sap is prepared by the accumulations of last year, it is doubtful whether much of it ever returns to the roots, but it remains to distend the cambium layer and yield up its treasure. It is the richest sap of the season.

It seems necessary to consider this matter thus far, in order to understand the effect of the stock upon the graft. The first flow of sap, as we have seen, can have no direct effect upon the scion. It simply prepares the stock for receiving the scion. The cambium into which the scion is set is filled with sap prepared by the stock, and this must be its nutriment until it has developed its own leaves.

Here we must notice the difference between grafting a young stock and a limb on an old tree. Cutting off the stock, whether large or small, stops the upward flow of the crude sap in that stock. If it is a young stock, no crude sap can ascend until the scion has united its sap-wood to the sap-wood of the stock, and then but little can ascend in the junction; in the meantime the scion must draw its nutriment from the cambium layer surrounding it and that cannot be replenished; hence it checks the growth of the plant until the scion is started. But cut off a limb on a large tree, and the crude sap, instead of being stopped, turns back to the junction of the other limb and, passing up that, increases the current to be elaborated. This increases the elaborated sap to be turned into the cambium, which flows freely to all the buds, whether on stock or scion. Now this increase of elaborated sap flowing to the cambium of the newly inserted scion, before it can elaborate any sap of its own, affects the quality of the wood formed by the scion, and hence affects the fruit. And here is the most important fact in this whole matter, that the *character of the wood* affects the character of the fruit. It was formerly believed that the leaves elaborated the sap and prepared it for the growth of the fruit, without any influence of the wood.

Mr. Thomas, in the article from which we have already quoted, says this idea is given up. In the case of thé stock composed of Plum, Apricot, Peach, and Almond wood, with only Almond leaves to elaborate the sap, each kind of wood, drawing from the same sap, matures its own kind of fruit, thus proving that it is an inherent power of the wood which decides the kind of fruit. Here it may be urged that if the wood through which the sap passes decides the fruit, the stock cannot affect it. But I answer, the stock affects the *fruit* by first affecting or changing the character of the *wood* of the graft. I think this is the key to unlock the whole mystery. We must not overlook the different effects which a large tree and a small stock will produce on the wood of small scions. Let us observe the effect which we know the stock has on the scion. If we graft a scion on a sickly stock we know the wood of the scion will be sickly and the fruit will fail. Take the case given by Mr. Burr. There was a taint in the tree which caused the fruit to rot before it was fairly ripe. The scion partook of that taint, and its fruit was worthless. Mr. Wilder struck the key-note when he said a scion grafted on an uncongenial stock will be unsuccessful; that unless

there is a close affinity between the graft and the stock it is impossible to have perfect fruit. Here the stock affects the fruit by affecting the wood on which it is to grow. Unless we have perfect wood we cannot have perfect fruit.

This applies to the flavor of fruit as well as to other qualities. Graft a pleasant apple upon a very sour apple tree, and there will be a want of affinity and the wood will be different from that of both stock and scion. Thus, when Mr. Weston put the Porter into a very thrifty but sour stock, the character of the wood was changed and the fruit suffered accordingly. So in the case of the Hightop Sweet in a thrifty Red Astrachan. Only a few limbs were grafted with the feeble growing Hightop scions, and the abundant and well elaborated sap of the vigorous Astrachan flowed into the cambium of the feeble scions and the poor things were almost drowned—a new kind of wood was formed and a new variety of fruit was the result. The new wood, when grafted on other stocks, retains its inherent power, and gives us a very desirable apple. In the case related by Mr. Marsh, the Hubbardston was uncongenial to the Hightop and produced a mongrel wood and a mongrel apple. In the case of Mr. Whiting's sport the Baldwin was probably grafted on a Russet stock which cropped out in the mixed or mongrel fruit. The mixed apple, where a part is sweet and a part sour, is best explained by Mr. Barry's conjecture that a sweet apple was grafted upon a Greening stock. Mr. Stetson, of Marshfield, informed me that as the tree loses its vigor the Greening part greatly predominates. But I trust I have given you facts enough to demonstrate that the character of the fruit of the stock affects the fruit of the scion. If the given explanation shall lead to further investigation my labor will not be lost.

In closing let me make the following suggestions:

First. In selecting seeds for propagating stocks, take the seeds of natural fruit which produces its kind, or from orchards where there is no poor fruit with which the seed may be crossed.

Second. Scions should be taken only from the best type of a variety.

Third. Never graft scions on uncongenial stocks.

Finally. Seek to modify disagreeable flavor by grafting on stocks of an opposite character.

Discussion.

The Chairman remarked that the subject is one in which all are interested, and that while we might theorize upon it, what we most want is the facts bearing upon it.

Henry Ross asked how the grafting of the Hightop Sweet on the Red Astrachan affected the time of ripening.

Mr. Talbot replied that the new fruit keeps better than the Red Astrachan.

N. B. White said that most of the instances mentioned in the paper which had been read were from bearing trees, where the blossoms were liable to be fertilized by the pollen of other trees. There are many instances on record where fruits have changed without grafting. Mr. Knight* mentions a Yellow Magnum Bonum plum tree which, after bearing fruit of the usual color for forty years, produced, on one branch, fruit in every respect perfectly similar to the Red Magnum Bonum. It is quite as probable that fruits have changed by the influence of pollen as by grafting. Mr. Meehan† gives an account of a bough of a pear tree which had always been altogether unfruitful, but after projecting into the bough of a neighboring apple tree, fruits were produced which in skin, flesh, and other respects were altogether apples, and had only the seeds, carpellary partitions, and stalk of the pear.

O. B. Hadwen said that he had been much interested in the essay, but that Mr. Talbot had not given us positive knowledge. The Baldwin is the same apple as it was half a century ago. Why has it not been affected by the thousands of stocks on which it has been grafted? The same question may be asked with regard to the Bartlett pear. If stocks had any influence it must have become a different pear. If nature provided for such influences we could not preserve our varieties. He was much interested in the experiment described by Mr. Talbot, of grafting the plum, apricot, and peach, on the almond, but are not all these true to their type? Blood and other peaches, grafted on any stocks, are all true to the type. Culture affects fruit. Trees standing near each other receive nourishment which we cannot understand. One side of a tree will produce fruit superior to that borne on the other. When the pear is grafted on the mountain ash the cells of the stock do not penetrate the cells

*Transactions of the London Horticultural Society, Vol. II., p. 160.

†Proc. Acad. Nat. Sc. Phil., 1871, Vol. I.

of the graft, and they do not influence each other, but the protoplasm of each forms its own cells. The bud of the horse chestnut contains all the parts in an embryo state and makes its growth for the year in a few weeks. If we feed calves, lambs, or pigs, on goats' milk we are not going to make goats of them.

Benjamin P. Ware said that the paper which had been read contained many very remarkable statements. That in regard to the Hightop Sweet grafted on the Red Astrachan is, at first sight, very difficult to explain, but he had himself had a similar instance. He cut grafts, with his own hands, of the Sheppard's Sweet, an apple of Connecticut origin. These he grafted on two trees, a large one and a small one. The fruit on the large tree was the true kind, while that on the small tree was entirely different; it was a small red apple—sweet, but not nearly as sweet as the true kind. Here was a case of variation which might have been accounted for by the influence of the stock on the graft, but he found that the tree from which he took the scions had both kinds—indeed his own large tree had both kinds—and he thought the case mentioned by Mr. Talbot might be explained in the same way. He had trees of the Ribston Pippin and Lyscom, which, being unprofitable, were regrafted with Drap d'Or, but no one could see any difference in the fruit. He had grown the Pickman Pippin from his youth, and he had noticed no variation in it, though the form of the tree and the texture of the bark are both very peculiar. If the stock affects the graft, why do the forms of all the trees remain alike? He did not think the seed of natural fruit would produce stocks alike. But he did believe that the scion affects the stock. He supposed that the stocks in a nursery are all different, yet if we graft each row with a different kind, we shall find that the roots of each row have a uniform character in regard to running down or spreading, having few or many fibres, etc., showing that the scion affects the root of the stock. The flavor of apples or pears may vary from the effects of soil or location, as cold clay or light sand, but his experience did not show that the stock affects the scion. If the scion is of more rapid growth than the stock or *vice versa*, each retains its own characteristics. He thought that if all the facts in regard to the remarkable instances of variation which had been mentioned were known, they could be explained without calling in the influence of the stock.

Mr. Talbot admitted that the Hightop Sweet is reproduced from

seed, and said that in Plymouth County it is valued as a stock. The Slug Sweet is also, and is used for stocks. The Allen peach always comes the same from seed. Dr. Warren would not have been likely to make a mistake in cutting his grafts. Where could the grafts of the apple resembling the Red Astrachan have come from? If known at Marshfield the fruit would have been recognized, but it was not.

Aaron D. Capen stated a fact in confirmation of the position taken by the essayist. Forty years ago he bought two trees of Vicar of Winkfield, but except in external characteristics they are not at all alike, though both genuine Vicars, and they have stood within ten feet of each other all the time. He had three Bartlett pear trees growing within twenty-five rods of each other, yet one bore superb fruit while another bore fruit like Bartlett in all but external characteristics, and the wood, leaf, etc., were Bartlett, while the form was so abnormal that the fruit could not be recognized. He cut the scions from which the three trees were grafted himself, and could account for the difference only by attributing it to the influence of the stock.

Mr. Talbot said, in reply to Mr. Hadwen's inquiry why the many stocks on which Baldwin apples have been grafted, did not cause them to vary, that there *is* a great difference in Baldwins. He had two trees, one of which varied so much from the average that it was two years before he could decide that it was Baldwin. One of the trees was from a nursery; the other was grafted on a natural stock.

Mr. Capen had always held the theory that the stock affected the fruit of the graft. He had bought Baldwin apples, some of which were colored almost like Porters, and he thought the color could be changed by repeated grafting on stocks of light colored fruit.

Mr. Talbot admitted that the graft affects the root, as stated by Mr. Ware. If the Siberian Crab is grafted on any number of stocks, the roots will all run down. When part of a large tree is cut off and grafted, the scions receive from the remaining limbs, through the cambium layer, elaborated sap, which overcomes the scion, but this is impossible when the whole top of a little tree is cut off and grafted.

The Chairman remarked that the discussion had been confined almost entirely to the influence of stocks on fruit trees, but the florist is interested in stocks for roses and other flowering plants.

The question of degree also comes up, and also whether some varieties are more liable to change than others.

Mr. Talbot said that in his researches on the subject he had found frequent reference to the effect of stocks on flowers.

Mr. Ware said that he had a tree of the Pembroke Sweet apple in his pear orchard, and that it is not unusual to find on it apples of pear shape. He never saw another case and had no theory in regard to the cause.

Mr. White said that Peter Henderson found, among a hundred cuttings, all made from one plant of the Tea Rose La Nankin, three distinct varieties, besides the normal type.* The essayist was in a dilemma as far as regards the new variety said to have been produced at Winthrop. If his doctrine is correct it may be changed by the stock and lost, but if perpetuated the doctrine is not true. The speaker thought the stock affected the constitution of the tree more than the quality of the fruit.

The Chairman spoke of the variegated abutilon, and its effect as scion and stock. He thought the large leafed the original variegated kind. When the smaller leafed kind was grafted on it, the scion became totally changed, and formed a well known and variegated variety. The variegated kind had been grafted on the plain, and the variegations came out on the stock. Thus the abutilon affords proof of the influence of the stock on the scion, and *vice versa*. He hoped we should have a greater number of positive facts on the subject. It seemed reasonable that a vigorous stock should have an influence on the scion. Why should we not expect its vigor would be imparted to the scion?

Mr. Hadwen said that the Chairman's question was a very pertinent one, and perhaps it is true that the stock does influence the graft, but there is more reason to expect the scion to influence the stock. This influence is strikingly shown by the roots of the Onondaga pear, which are always so much alike that this variety can be distinguished by them. The elaborated sap, returning, influences the roots. We have very little positive information as to the influence of the stock on the graft, but if such an influence existed to any considerable extent we should in time lose the original type of our fruits.

John B. Moore said that he felt under obligation to Mr. Talbot

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* Burbidge's Propagation and Improvement of Cultivated Plants, p. 99.

for his paper, which showed thorough investigation. There is no doubt that the stock affects the vigor of growth in trees. He knew two apple orchards where one half of the trees were grafted on selected stocks, and made much better trees than the others. Errors in regard to the origin of varieties are readily propagated in the newspapers. Thus a man in Hubbardston claimed to have originated the Hubbardston Nonsuch by grafting a sweet apple on a sour. The speaker had visited the original Hubbardston Nonsuch tree, and found the top broken off, and sprouts producing fine apples, but there was no indication of grafting. The statement referred to was not merely an error, but a deliberate falsehood, circulated through the newspapers. As to the case supposed by Mr. Talbot, of a limb with four different kinds of wood, if fruit is produced on either kind, the peach for instance, the peach bud carries leaves with it which will elaborate sap. Grapes will not ripen if the leaves above them are taken off, neither will peaches. All the instances mentioned by Mr. Talbot were said to be on thrifty stocks. Stronger roses can be grown on a strong stock than on a weak one, Tea roses on Laure Davoust, for instance; or better Hybrid Perpetuals can be grown on Manetti than on their own roots. The dwarf pear frequently gets entirely rid of the quince roots in a few years.

M. H. Merriam suggested that there were points for further inquiry, connected with the subject under discussion. Nothing militates against the theory of mutual influence. In regard to permanence of effect, the Baldwin apple has perpetuated itself with much purity, and it is the same in the animal kingdom. The value of an animal as a breeder depends on its power of transmitting its characteristics to its progeny. Stocks grown from seed may or may not possess this power, but an established race will fix its character on a stock possessing less individuality, and this is a valuable quality in a variety. Among seedlings, however, we occasionally find a stock of such vigor as to govern the scion. The speaker believed the influence of stock and scion to be mutual, and which should predominate could only be shown by trial.

The Chairman said that in this light the question what kind of stocks we used became important.

On motion of Mr. Talbot it was unanimously voted that the discussion be continued on the next Saturday.

BUSINESS MEETING.

SATURDAY, January 18, 1879.

A meeting of the Society was holden at 11 o'clock, agreeably to adjournment, Vice-President C. O. Whitmore in the chair.

Marshall P. Wilder announced the decease of Dr. Jacob Bigelow, the oldest member of the Society, its first Corresponding Secretary, and the projector of Mount Auburn, and moved that a committee be appointed by the Chair to prepare resolutions expressive of the sense entertained by the Society of Dr. Bigelow's services. The motion was unanimously passed, and the chair appointed Marshall P. Wilder, Charles M. Hovey, and Robert Manning, as that committee.

William C. Strong announced the decease of James Cruickshanks, and moved the appointment of a committee to prepare memorial resolutions. This motion was unanimously passed, and the chair appointed W. C. Strong, E. W. Buswell, and E. W. Wood, as that committee.

C. H. B. Breck, Chairman of the Committee of Arrangements, read the annual report of that committee in an amended form, which was unanimously accepted and referred to the Committee on Publication.

E. W. Buswell read his annual report as Treasurer, including the report of the Finance Committee, which was accepted and referred to the Committee on Publication.

Adjourned to Saturday, February 1.

MEETING FOR DISCUSSION.

A meeting for discussion was holden after the adjournment of the business meeting, W. C. Strong, Chairman of the Committee on Discussion, presiding. The discussion was a continuation of that of last week, on the Influence of the Stock on the Graft.

J. W. Talbot said that the apples referred to by him last week as produced by the Hightop Sweet grafted on the Red Astrachan,

retain their character when grafted on other trees, so that a new variety has been produced. It is unlike any other known. Dr. Warren went to Marshfield himself and got the grafts.

Charles M. Hovey hoped we should have the apples exhibited.

Washburn Weston said that he was gardener to Dr. Ira Warren at the time the apples referred to were grafted. Dr. Warren bought the place twenty-nine years ago. There were on it two rows of Red Astrachan and Philadelphia Greening apples, and Dr. Warren wished to have some of them changed to Hightop Sweet. The scions came labelled Hightop, and the speaker grafted three trees. He afterwards left the place, and the trees were transplanted by another gardener. After a long while the trees bore, and the fruit was white with a red cheek, resembling the Maiden's Blush. Mr. Weston afterwards went on to the place again, and, still later, bought it. The trees have now come to maturity, and the apples are much sought for. Porter and Williams apples have also varied.

Mr. Hovey said that Mr. Weston had explained the whole thing. Apples were grafted for Hightop Sweet which were not. There are a thousand chances for such mistakes. After the Urbaniste pear had been in cultivation here for more than twenty years it was introduced as a new variety, under the names of Louise d' Orleans, and Beurre Picquery, and through such mistakes we accumulate synonymes.

Mr. Talbot said the Porters referred to by Mr. Weston were so changed as to be pronounced incorrect. They were much more sour than usual.

Mr. Weston said that he cut the grafts of Porter, and grafted them on wild apples himself.

Marshall P. Wilder said we all know that flavor is affected by soil; fruits which in a cold soil are sour and harsh becoming mild and pleasant on a warm soil. He had seen such changes in trees standing near each other, and in one instance was inclined to attribute it to the stock, but the subject is an abstruse one. He was formerly indisposed to believe in the existence of a "sweet and sour" apple, though a clergyman in Dorchester told him of a tree which produced eight and a half bushels. Still, he could not believe it until he saw it himself, and last fall the clergyman sent him a branch with apples which were a union of the Rhode Island Greening and Golden Sweet.

Mr. Talbot read the passage from Mr. Wilder's address which he quoted in his paper last week (see page 8).

Mr. Hovey said he could agree to Mr. Wilder's doctrine. Mr. Wilder referred only to affinity, and not to the character of the fruit. Four years ago, Mr. Hovey said, at one of these meetings he read a paper on Sports and the Reciprocal Influence of the Stock and Graft, but sports are entirely distinct from stock influence. In Western New York nurseries there have been for years a hundred thousand Bartlett pear trees grafted annually, and has any body seen any change from the fruit borne by Mr. Bartlett's original tree?

Mr. Talbot said that he saw in the newspapers a statement that in Florida, oranges grafted on wild stocks revert to the wild form in a few years. Eliphalet Stone, of Dedham, has a Bartlett tree which produces fruit of two different types, yet both Bartletts. One side of the tree produces one kind and the opposite side the other. The foliage and habit of growth of the two kinds also differ. They were from different scions which had probably been affected by growing on different stocks.

Mr. Wilder could not agree to the idea that the great law of the Creator for the perpetuation of varieties could be set aside. The instance mentioned by Mr. Hovey, of the Bartlett pear, is the strongest proof that it has not been.

Leander Wetherell said that if we asked nurserymen whether varieties were changed by continual grafting on natural stocks, the reply would be that they are not. If the doctrine maintained by Mr. Talbot is correct we should have seen the end of all good fruit long ago.

The Chairman said that the question under discussion was *how much* the scion may be influenced, and varieties still retain their identity. He believed that the stock does influence the scion. A scion of *Magnolia glauca* inserted in *M. acuminata* will grow to three times its natural size and be more hardy. The stock influences the flower, for it is the commonest thing to graft Hybrid Perpetual roses on the Manetti stock, and get much larger flowers. Why should not the fruit also be changed—not radically, but the question is, *how much?* It would seem improbable that all the instances mentioned could be explained on the ground of mistakes. Perhaps the Porter is more sensitive to the influence of the stock than other varieties. If we pursued our experiments and observa-

tions as carefully as Mr. Darwin, perhaps we should notice more changes.

Mr. Wilder agreed with the Chairman, but the rose or magnolia did not alter its type, however it might be increased in vigor or fertility. He had seen *Magnolia glauca* with a leaf as large as his hand.

The Chairman asked why the flavor of fruit should not be changed as well as the color? A new variety of abutilon has been produced by grafting—he had done it himself—and the variety is perpetuated.

Rev. A. B. Muzzey said that when he was ten years old he grafted a pear on thorn, and the variety was reproduced, but essentially changed. It had deteriorated, but perhaps this was due to the fact that the soil was poor, while the tree that furnished the scion grew in a good soil. He would like to know whether the newspaper account of the degeneration of the orange in Florida, mentioned by Mr. Talbot, was true. It was stated that they begin to degenerate in two or three years, and that in eight years the fruit is worthless.

Mr. Talbot repeated the account of Francis Marsh's Hubbardstons, grafted on the Hightop Sweet and Roxbury Russet (page 11), and called on Mr. Marsh, who was present, to testify to its correctness.

Mr. Marsh confirmed Mr. Talbot's statement, and said that the difference had continued for twenty years.

Benjamin G. Smith said that he had grafted small pears, such as Dana's Hovey, on vigorous stocks, and increased the size of the fruit fifty per cent. but at the expense of the flavor.

John B. Moore said it was well understood that stocks affect the vigor of the scions. If you put a small fruit on a vigorous scion, the superabundant vigor affects the quality unfavorably. Weak growing roses have larger flowers on strong stocks. Mr. Moore referred to a theory held by President Chadbourne, that plants develop in two ways—fruits in utility and flowers in beauty—but that the same species never develops in both directions. In developing the apple the size of the fruit is increased, but the rose never develops in the fruit. Of the egg plant, tomato, and potato, three closely allied plants, the first two develop in the fruit, the last in the tuber. The speaker thought the effect of any particular stock on the rose would be only on the flower. The Red Astrachan seems to be the fancy sport. He knew a tree of this variety girdled by mice

which had scions of three or four varieties inserted to bridge over the girdled place; the top afterwards died down, and each scion produced fruit after its kind. He thought many of the supposed instances of the effect of the stock on the graft could be accounted for by similar causes.

The Chairman said that President Chadbourne's theory sounded very pretty, but had he never seen a double flowering peach, cherry, or plum—as double as a camellia?

Mr. Moore was not sure that he had stated President Chadbourne's theory exactly, but roses, as they grow more double, soon get to the end of their seed-producing power.

Mr. Wilder said that he still believed the principles laid down in the passage from his address before the Pomological Society, quoted by Mr. Talbot, to be correct. When we have attained to an exact knowledge of the adaptation of the stock to the graft, that will be the perfection of culture. The Beurre Clairgeau will not grow on the Buffum; it is almost impossible to make some varieties grow on the Nouveau Poiteau; and the Cross destroys almost every stock on which it is grafted.

Mr. Talbot said that Mr. Wilder, in admitting that one stock would make a scion of a certain variety grow, while another would not, had admitted the whole case. With a small stock it is almost impossible to change the character of fruit; when the greater part of the top is retained there is opportunity for change.

The Chairman thought the mutual influence of stock and scion more important than we have been accustomed to believe. Florists have been turning their attention to rose stocks, and the same care should be given to fruit tree stocks.

On motion of Leander Wetherell it was voted that the subject be continued on the next Saturday, and E. W. Wood, or M. H. Merriam, as a substitute, was appointed to prepare a paper to introduce the discussion.

MEETING FOR DISCUSSION.

SATURDAY, January 25, 1879.

A meeting for discussion was holden today at 11 o'clock, W. C. Strong, Chairman of the Committee on Discussion, presiding. The subject was the same as on the last two Saturdays, the Influence of the Stock on the Graft.

The statement made in regard to the Porter apples grafted by Francis Marsh (p. 24), was recalled, and again confirmed by Mr. Marsh.

E. W. Wood, who was appointed at the last meeting to open the discussion, said that Mr. Talbot's paper was evidently very carefully prepared. The speaker thought there was no danger of reflections on the Society from any opinions which might be expressed in the course of these discussions. Beginners will fall into errors, and things appear strange to them which do not to experienced cultivators, such as the Sweet and Sour apple, the very existence of which has been doubted. The essayist thought it might be due to the effect of the stock on the scion, but that such a variety exists, many of the members of this Society are convinced.

Mr. Wood expressed his surprise at the extreme ground taken by Mr. Hadwen, who thought that the stock exerted no influence on the scion, except to increase its vigor. Why should not fruit be affected as well as flowers? Instances of such effect are more common in pears than in apples. On pear stocks the Duchesse d'Angouleme is knurly and inferior, while on the quince stock it is fair and good. The same difference is seen is the Louise Bonne of Jersey. The quince stock also affects the time of bearing; the Urbaniste, which requires from twelve to fifteen years to come into bearing on the pear, requires only five or six on the quince. The influence of the stock on the graft is equally noticeable in the rose. Most French and English growers graft roses on either the Manetti or the Dog rose stock. The Climbing Devoniensis is a shy bloomer on its own roots, but when grafted on the Laure Davoust it blooms abundantly. There appears to be a difference in varieties of fruit as to their susceptibility to the influence of the stock. The Hightop Sweet and Porter have been more frequently mentioned in the course of this discussion than any other varieties. There is a great

difference in the estimate of the Porter; of late they have failed to produce as good fruit as in former years. In Mr. Weston's experiment at Winthrop, a new variety seems to have been produced, for there is no apple like it known where the grafts came from. Mr. Wood concluded with the remark that a sufficient number of instances had been brought forward to at least raise the presumption that the stock exerts an influence on the graft.

M. H. Merriam, who had been appointed as a substitute for Mr. Wood in opening the discussion, read the following paper:

Mr. Chairman:

You were pleased to observe that what we needed in the pending discussion was facts. This remark, in this connection, is not commonplace but of emphatic importance, because, in determining the laws of vegetable physiology, we are obliged from necessity to reason back from effect to cause—to assume the law as a necessary inference from extended and accurate observation. But here it becomes of the highest importance that the methods and tests of observations of phenomena be critical as well as comprehensive, so that the observations made shall have the stability and verity of facts. The present aspect of the inquiry before us is, if I understand it, whether or not it is a fact of vegetable physiology that, as a result of grafting, the characteristics of the stock are impressed upon the scion, and those of the scion upon the stock, or, are these influences mutual, and, if these inquiries are answered affirmatively, what is the nature and extent of the influences; for although the latter division of the subject is involved in the investigation of the former, there is perhaps more difference of opinion as to the nature and extent of the stock influence than as to the general fact of such influence. I believe it to be generally conceded that effects of a certain kind follow the union by grafting of varieties of allied living vegetable organisms, but, some say, limited as to the nature or extent of the modification to a more or less vigorous development of plant, as a result due to *nutrition* rather than to a modification of the distinguishing characteristics of the variety. Others are of the opinion that the influences are appreciable in various degrees in the modification of habit, vigor, color, form, or taste, of plant, fruit, or flower to the extent of producing the distinctions necessary to constitute a different variety. I purpose to submit here such testimony as I have been able to gather from others, rather than the results of personal observation.

J. H. Balfour, Professor of Botany and Medicine in the University of Edinburgh, in his treatise on Botany, in the "Encyclopædia Britannica," Eighth Edition, Vol. V, p. 168, says: "Several advantages are derived from the multiplication of vegetables by grafts," and enumerates "procuring quickly many valuable trees which are with difficulty multiplied by other means; hastening the period of fruit bearing; and by these means improving and propagating varieties of fruit trees. Grafting has the effect of supplying to the scion a store of nutriment ready prepared and at once fitted for use. Moreover the nature of the stock imparts often certain qualities to the fruit borne by the graft." In reviewing this subject he concludes thus: "There can be no doubt, however, that the nature of the stock has a decided effect on the scion, both as regards its nutritive and its reproductive organs. Thus it is stated that pears grafted on the mountain ash are rendered more hardy and bear fruit earlier; and when grafted on quinces they become higher colored. Apples grafted on the Siberian Bitter Sweet apple are more highly colored than when grafted on crabs; peaches on plum stocks are coarser than on peach stocks. The Beurre Diel grafted on the thorn produces hard fruit. This shows that the stock has an influence on the graft, and points out the importance of selecting stocks of good quality. The plan of ennobling fruit trees proceeds on the principle of grafting on superior stocks."*

Patrick Neill, LL.D., author of the "Fruit, Flower, and Kitchen Garden," and Charles M'Intosh, author of the "Book of the Garden," and joint editors of the article on Horticulture in the "Encyclopædia Britannica," Vol. XI, p. 694, observes: "The stock has also a *considerable influence over the scion* and therefore great care should be taken in its selection. If the mere multiplication of individuals were all that was to be expected of budding or grafting, then the stocks most easily procured, if sufficiently akin to the scion, would be the best. But the operation is of far greater importance than this; it ennobles the tree by changing its character from a worse to an improved condition as to its production either of fruits or flowers. To a certain extent it increases the hardiness of a tender sort when wrought on a stock capable of resisting cold, or one which is more suited to the lower soil temperature of northern

* See, also, Dr. Lindley's views on this subject in his "Theory of Horticulture," Edition of 1855.

latitudes than that natural to the tree from which the bud or scion was taken."

The same authors continue: "The stock has considerable influence on the fruit. The Stanwick Nectarine, very apt to crack when wrought in the ordinary way, is cured by budding on the Magnum Bonum plum wrought on a Brussels stock. The quality of the fruit is improved."*

From these facts we learn that the quality of fruit must become deteriorated when wrought on stocks the fruit of which is worthless. For example, Peaches would be so when wrought on the Almond or Wild Plum, the Apple on the Crab, and the Pear on the White Thorn or Mountain Ash.

Analogy would lead us to expect that from using as stocks those trees whose fruits are of known excellence, still greater excellence would follow, and this is asserted to be the case. In the same way double working, or ennobling, is said to improve the quality of fruits.

Thomas Meehan, of Philadelphia, in a paper read before the American Association for the Advancement of Science, at Buffalo, August, 1876, and published in the "Gardener's Monthly," Vol. XVIII, p. 306, says that in order to test the truth of a wide spread impression which has existed for more than a hundred years, that hybrids may be obtained by grafting as well as by seeds, he tried the experiment of uniting two halves of different buds, and grafting them together, not believing it would result in a hybridity. He found, however, that the popular notion is correct. He says "New varieties can be obtained in that way. I took the Rhode Island Greening and Red Astrachan, two very distinct varieties of apples in every respect. The grafts with a single bud were split as near through the centre as possible, and a piece of each kind fitted together so as to appear one complete scion. Twelve of these were grafted; three grew; two of these have fruited; neither is Rhode Island Greening, and the two are unlike each other; one of these has a flower like the Rhode Island Greening, and the flower of the Red Astrachan is rosy and in many ways distinct from the large white one of the Rhode Island Greening; but the fruit is in many respects similar to that of the Red Astrachan. The second variety has the flower similar to that of the Rhode Island Greening,

* See, also, Dr. Lindley to the same purport.

and the fruit somewhat the color of the Red Astrachan, ripening about the same time, but is but half the size, very much flattened, and with a slender stem near two inches long, and as much like that of a Siberian Crab as can be. There is no doubt but two varieties, distinct from their parents, and distinct from each other, have resulted from this graft process. Some may suppose that the union of a Red Astrachan and a Rhode Island Greening apple should result in producing an exact intermediate, and that the union of buds in several graft cases should each produce identically the same, and therefore the two distinct varieties from the same process be a surprise. But no two children of the same parents are exactly the same, and this is the experience of plant hybridists."

A new variety of sugar cane known as the St. Julian was obtained in Brazil in this way: "It was raised by Commander Julian Ribeiro de Castro by splice grafting; the Cayenne being the stock and the Molle being the scion. The eyes and leaves of the product were of the Molle, but the stem and the size of the Cayenne. In this case, the two eyes were selected and split in halves, as taken by the editor of the "Gardener's Monthly" with his apple grafts, and the alternate halves united before grafting. Trials were made to set these united halves as cuttings, but no hybrid results came. Only when grafted on a growing stock did hybrids result from the halved pieces."*

As evidence that the scion affects the stock, Prof. J. H. Balfour, before quoted, observes: "In some instances it appears that the scion has a decided effect on the stock. At Chelsea the variegated White jasmine was budded upon a branch of a fine plant of Revolute jasmine, with green leaves, and in the succeeding year a slight appearance of variegation came out on the leaves of the Revolute jasmine. The next year the branch which had been budded was cut out, so that the Revolute jasmine was thus apparently deprived of all influence from the variegated bud; nevertheless, the variegation in the remainder of the plant continued to increase, and the leaves and branches ultimately became all variegated, even more than the White jasmine whose bud was originally inserted."†

Dr. Neill and Mr. M'Intosh, also before quoted, say "Delicate

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* Gardener's Monthly, Vol. XX, p. 184.

† See this subject in Dr. Lindley's Theory of Horticulture, Edition of 1855.

and shy flowering roses when wrought on strong growing sorts produce and develop their flowers, which they would not do on their own roots, and, singular to say, the most delicate variegations are retained when budded, which would not happen if not so treated. Buds of a variegated plant, inserted into a branch of the same genus having only green leaves, will, even should the inserted bud not push into growth, produce variegations in the leaves of the green leafed plant. In this way the curious *Cytisus Adami*, produced apparently by grafting *Cytisus purpurea* on *C. Laburnum*, exhibits both purple and yellow flowers."*

Remarkable cases of innoculation are produced by grafting varieties of the Coleus; some are recorded in the "Gardener's Monthly," Vol. XIX, p. 298.

Testimony of this sort could be multiplied, particularly that of Dr. Lindley. But enough has been adduced to show that the character of the stock is of immense importance as affecting the scion, and the quality of the fruit or flower, and, that in some cases, at least, by particular conditions or preparation of the scion, new varieties can be produced. Now, then, may we not be able to account for the production of new varieties accidentally by some fortuitous combinations of circumstances, which, in several instances has been accomplished by design? Is it not within the range of probability that when new varieties have occurred incidentally, without design and in ignorance, paring the scion has divided a bud, which, when inserted in the stock, has been placed in contact with a cleft bud of the stock, and that in that way occur the phenomena of new varieties by grafting? I do not intend, however, with present information, to suggest this method of hybridizing as desirable. It is to be desired, however, that there be more attention given to the improvement of stocks as a means of ennobling varieties, and I apprehend the day is coming when the pedigree of stocks will be thought to be of relatively as much importance as that of animals.

There is one consideration which has been advanced here that deserves notice, viz.: the permanence of varieties which for a long time have been grafted on indifferent stocks and still retain their identity, of which the Baldwin apple is instanced as a strong case. In the present stage of knowledge on this subject it is impossible to pronounce with certainty; I will only attempt suggestion.

* See, also, the "Treasury of Botany," article "*Cytisus*."

Varieties of fruit as well as animals sometimes appear with decided characteristics, having among other qualities those of permanence and ability to perpetuate their kinds, in illustration of the doctrine of "the survival of the fittest." The Baldwin apple and many other varieties, by strength of constitution, have asserted their permanence when grafted on the indifferent seedlings of the pomace of the cider press, from all sorts of diseased, unripe, miserable fruit, which would not be likely to have those strong characteristics that would make their influence felt over a noble scion, and the rare cases in which it is possible escape observation. Nevertheless, I have no question as to great differences in the quality of Baldwin apples, account for it as we may. This phenomenon of remarkable permanence and ability to produce its kind, is occasionally manifest in varieties which reproduce themselves from seed. The Hightop Sweeting may be one of such. In Florida, the Indian River orange, peculiar and distinct among the numbers of varieties grown in that State, and by all odds the best orange in the State, grows true from seed; while the inferiority of many kinds there grown is due to budding on the wild orange, which is exceedingly abundant, and offers the temptation of earlier returns and greater hardiness. The fruit of grafts on these sour oranges depreciates with age, and the oldest orchards that I have seen have the poorest fruit.

Discussion.

Charles M. Hovey said that the only authentic instances of the production of a new variety by grafting, were when a variegated leafed plant was grafted upon a green leafed one. *Abutilon Darwini tesselatum* was produced in this way. The effect is not always produced, but it is generally. The pear has been grafted on the quince by the French for two hundred years without changing the variety. The rose has been grafted on the brier for as long a time, and the old Cabbage rose has remained without an atom of change. The Gen. Jacqueminot rose is not changed when grafted, from what it is when grown on its own roots.

Mr. Hovey said he should like to see the fruit of the Baldwin or Hubbardston apple "ennobled" by grafting. The best Duchesse d'Angouleme pears he had ever seen were from a tree on the pear stock, which for twenty-five years produced only inferior fruit, after which it bore the finest specimens. He has, himself, two trees of the Louise Bonne of Jersey on pear roots, of which the fruit is high

colored and of fine quality. Lord Bacon says that grafting mendeth and increaseth the fruit, and that the scion ever overruleth the stock. The influence spoken of by the essayist is not that which increases or lessens the vigor of the graft, but that which produces change in varieties. Mr. Hovey said he should like to have a committee of two visit the market and see if they could find any Baldwin or Hubbardston apples that have been changed by grafting. He recollected the Bartlett pear as it was sixty years ago, and all the grafting which it has undergone since that time has not changed it. The remark that weak growing roses never bloom on their own roots is not correct. The Climbing Devoniensis, which originated in a sport, will grow on its own roots, and does not go back like the old Devoniensis. Professors of botany may be accurate, but they are not always experimental. The speaker put no faith in Mr. Meehan's experiment, quoted by Mr. Merriam; analogy shows that what is claimed cannot be done. Perhaps dormant buds shot out so near the divided buds that the shoots were supposed to have come from the latter. The old doctrine of cultivated fruits reverting is now known to be fallacious. There is no evidence of change of variety from grafting, but only of increased vigor.

The Chairman, in reply to the last statement, instanced his own grafting of *Abutilon vexillarium* upon *A. Thompsoni*, thereby obtaining a new, distinct, and permanent variegated variety. This case was too plain to admit questioning. When *Abutilon Darwini* was grafted on *A. Thompsoni*, the flowers were identical, and the leaf was partially variegated. Variegated kinds, grafted on plain, send down their influence, so as to make it evident that the stock affects the scion, and *vice versa*.

Marshall P. Wilder said that the illustration from the abutilon was exceedingly interesting, but that in his experiments he had not been successful in producing the variegations.

Aaron D. Capen said that he had seen at the Norfolk Agricultural Society's fairs, very large Seckel pears with no color. Whence this effect? He never saw any rosy cheeked Bartletts, fifty years ago. Kenrick* speaks of a row of pear trees on quince roots, in the garden of the London Horticultural Society, at Chiswick, which produced fruit far superior to that borne on common standards. A neighbor of the speaker informed him that Rhode Island Greenings

* New American Orchardist, second edition, page 46.

from grafts on the Hightop Sweet would hardly bear carriage to Boston.

Mr. Talbot said that the Rhode Island Greening, grafted on the Hightop Sweeting, became a fall apple, hardly keeping through November.

Benjamin P. Ware said that we were all seeking for facts, and that he could not discover reasons for changing the position taken by him at the previous meetings. One fact will disprove much of the theory advanced here. If an apple tree is grafted with different varieties, such as Harvest, Williams, Pembroke Sweet, Baldwin, Russet, each one will produce its own distinct type. If there is even a slight influence it is strange that they should be distinct. However the statements made may support the theory advanced, other facts point in a different direction. Mr. Weston's statement has done away with the Winthrop instance. The tree had been transplanted and had not recovered its vigor, and the fruit was handsome but would not keep. The speaker thought that the changes described might be accounted for by disease, or by the influence of soil or location, or in some other way. He had seen many instances where the scion did affect the stock. He had raised good specimens both of the Duchesse d'Angouleme and Louise Bonne of Jersey on pear stocks.

Mr. Talbot said that when four or five kinds are grafted into one tree, the question is not whether the kinds are preserved, but whether they vary, and especially whether they vary in season of ripening. The instance mentioned by Mr. Marsh is a positive fact. Mr. Talbot thought the argument used by the last speaker in regard to the Winthrop trees, rather strained. Some of the trees produce apples unlike any other. If you get an apple that is different from both stock and scion you have a new variety, and admit the argument. We are calling out facts from one and another, and when we get enough, we shall have a theory. The speaker held that if we looked into the physiology of the matter we could account for the facts, and asked how many there were present who understood the circulation of the sap. When we graft a small tree we stop the circulation entirely; when we graft a part of a large tree the circulation still goes on. All understand that the sap goes up in the sap-wood; if we cut off the bark from a maple carefully it will not bleed, but if we touch the sap-wood it bleeds. Sometimes it kills a little tree, or even a large one, to cut off all the limbs and graft

it, for the scions take up very little sap. The returning sap is not of the same kind as the rising. The effect of the sap of the scion of an upright growing variety is shown in its causing the roots to run down. The cambium layer runs out to the very terminal buds, and encloses everything, and all growth proceeds from it. There are no leaves to elaborate the first sap. Nature stored up in the autumn all that was necessary to start vegetation in the spring. The first start is in the bud, and dissolves what was laid up. After the leaves are formed they begin to elaborate sap, and they are receptacles and laboratories for the sap which passes down. Probably as much sap passes up after a limb is sawed off as before, an increased quantity going into the other limbs. It passes one way as well as another. The sap elaborated in the leaves of the stock passes so strongly into the grafts as to change the character of the wood, and here is where the character of the fruit is determined. The fruit of one of Mr. Marsh's Hubbardstons grafted on the Hightop is neither of those varieties; the fruit and the tree are mongrel.

John B. Moore said that Mr. Capen, in his quotation from the "American Orchardist," left out everything that would tell a different story. Loudon says that in pyramids, thinned, the fruit will be better. In this discussion points have been claimed as facts which are not facts. Mr. Weston left so many doubts in regard to the change of the Hightop Sweet, that the point is not proven. No one doubts the influence of the stock in increasing the vigor of the tree and the size of the fruit. The speaker said that he had known red-cheeked Bartletts forty or fifty years, and especially on feeble trees, and had seen all grades of Bartletts on the same tree. He thought this discussion would leave things about where they were when we began it.

O. B. Hadwen thought we had not changed the first principles of nature as regards fruit. The cause of variegation in plants is not settled; if it is disease it would be carried into the cells of the stock from the scion. It seems to be settled that the stock cannot influence the scion so as to affect the fruit. The cases mentioned which appear to point to a different conclusion, may be the effect of pollen. Apples ripen earlier on one tree than on another, but we do not always know the cause. The same variety will ripen earlier in cultivated ground than in grass. The evidence as to the cause of these differences does not point to the stock.

Mr. Merriam said it was an easy way to dispose of testimony, to

say we do not believe it. The testimony of such men as Lindley, M'Intosh, and Meehan, is certainly worthy of consideration. If this subject were settled there would be no occasion for this discussion. Universal testimony says the pear on the thorn is different from the pear on the quince. If we have not observed, that does not prove that others have not. If it can be proved that the pear is changed by grafting on the mountain ash we have gained one fact. Reasoning from analogy, some varieties are permanent, and have the power to assert their characteristics. A single generation alters a plant insensibly, yet differences are perceptible, and if one variety is better than another we want to know how it is produced. The question whether the stock influences the graft is an open one and cannot be settled by saying we do not believe that it does.

Mr. Wood remarked that the Duchesse d' Angouleme requires longer to perfect a tree on pear roots than on the quince. It would require ten years on the pear, and only five on the quince. Mr. Ware's trees have probably been long grafted. The grafts in his tree may show the varieties, but have they not been influenced at all? Some varieties are more susceptible than others; Hightop Sweet and Porter appear to be most eligible if one is disposed to experiment.

BUSINESS MEETING.

Saturday, February 1, 1879.

An adjourned meeting of the Society was holden at 11 o'clock. In the absence of the President and Vice-Presidents, Marshall P. Wilder, was chosen President *pro tem.*

P. G. Hanson, of Woburn,

was elected a Life Member of the Society.

E. W. Buswell, from the Committee appointed to prepare resolutions in memory of James Cruickshanks, presented the following which were unanimously passed:—

Whereas, It has pleased the All-wise Disposer of events to remove from us by death our fellow member, James Cruickshanks, therefore

Resolved, That we thereby sustain a loss which will be long and

deeply felt. His great love of horticultural pursuits, his long experience, and his sterling integrity, gave weight and value to his counsel. Constant and faithful in all his duties; genial, social and sympathetic in his nature, his presence was always a source of pleasure to us, and we shall cherish his memory in full sympathy with his family in their bereavement.

Resolved, That these resolutions be entered on our records, and that the Secretary be directed to send a copy to the family of the deceased.

Adjourned to Saturday, March 1.

MEETING FOR DISCUSSION.

A meeting for discussion was holden on the adjournment of the business meeting, W. C. Strong, Chairman of the Committee on Discussion, presiding. Robert Manning read the following paper on

Grafting the Gooseberry on the Missouri Currant; with some other Adaptations of Grafting.

At the Centennial Exposition in 1876, standard gooseberry bushes grafted on the Missouri yellow flowering currant were exhibited, and have since been spoken of as a novelty. The plants referred to were imported from the Pomological Institute of Dr. Edward Lucas, at Reutlingen, Wurtemberg, and it is said that this method of cultivating the currant and gooseberry became general in Europe about twelve years previous to their exhibition.

In the "Horticulturist" for September, 1848, Vol. III, p. 119, may be found a communication by David Miller, Jr., of Carlisle, Pa., in which he stated that a large variety of gooseberries had been cultivated in that section, but that they had been so attacked with mildew as to be altogether abandoned, until it occurred to him to graft them on the Yellow Flowering or Missouri currant (*Ribes aureum*), and that grafted on this stock it did well even in the most unfavorable seasons. He had then one stock worked in this way, which was about eight feet high, and its numerous shoots were fairly bent down by the weight of an enormous crop of fruit. I may mention in passing that the American gooseberries which are free from mildew were little known at this time, the earliest mention

of the first of them, the Houghton's Seedling, being in "Hovey's Magazine" for September, 1847, Vol. XIII, p. 422. In August, 1849, David Miller's statement was confirmed by Samuel Miller, of North Lebanon, Pa.*

In an account of the plants exhibited at the Centennial, directions are given to pot the stocks, place them in a frame and afterwards bring them into a cool house, and shade before grafting, and it is added that bottom heat is not absolutely necessary but is in a measure very beneficial. It seemes hardly necessary to say that all this trouble is entirely useless here; the plants can be produced with perfect ease without an inch of glass, as easily as red currant bushes, and in precisely the same way, by cuttings of the ripened wood, planted in fall or early in spring. As it is important that the plants should be free from suckers the eyes should, excepting a few at the top, be cut out clean. When they begin to grow, a single strong shoot should be selected and care should be given to train it upright so as to make a straight stem. As to grafting or budding, this is as easily done as with a pear or cherry tree. They may be budded as soon as the buds are sufficiently ripe, but the method which I have found best is side grafting under the bark in August, the top being cut down in spring and the snag removed afterwards, as with budded trees.

I do not think that the exemption from mildew of gooseberries on these standards is due to any peculiar quality in the sap supplied to them, but to their elevation above the ground allowing a free circulation of air. When standard red or white currants are desired, this method of cultivation is preferable, as the *Ribes aureum* is exempt from the attacks of the borers which infest the shoots of the *Ribes rubrum*, and are particularly injurious to plants with single stems. Another advantage is the cleanliness of the fruit, especially of gooseberries of such spreading habit as Houghton's Seedling and Crown Bob. The fruit is more conveniently gathered, and the plants are quite ornamental.

The consideration of this subject opens the question of the limits within which grafting can be performed. Professor Lindley's statement is that "varieties of the same species unite most freely; then species of the same genus; then genera of the same natural order;

* Horticulturist, Vol. IV, p. 65.

beyond which the power does not extend, unless in the case of parasites."* Practically this statement will be found far too wide. I have attempted to graft the laburnum on the locust, both belonging to the papilionaceous section of the order Leguminosæ, but without success. The flowering dogwood grafted on the cornelian cherry, both belonging to the genus Cornus, grew just enough to show that it acknowledged the relationship, and then died, nor was the experiment of grafting it on the bloody twigged dogwood more successful. The Josika lilac grafted on the ash, took and grew, but the Persian lilac grafted at the same time failed. The Persian lilac will however grow on the common lilac. Grafts of *Robinia Decaisneana* on the rose acacia (*Robinia hispida*), all grew well for one summer, and were all killed in the next winter.

Such experiments as these are interesting to those who love gardening, and may possibly throw some light on botanical affinities. Sometimes a weak growing shrub may have vigor imparted to it by grafting on a stronger stock, as the rose acacia which I have grafted with excellent effect on the glutinous acacia (*Robinia viscosa*). That common yet beautiful shrub, the dwarf double flowering almond, which usually grows but two or three feet in height, may be budded on seedling peach stocks, forming large and beautiful specimens when in flower. The Belgians, it is said, make beautiful standards of the *Deutzia gracilis* by grafting it on the tall stems of the *Philadelphus grandiflorus*, but in the only attempt which I have made at this union the buds did not take. I have no doubt, however, that it may be easily effected, and very likely some of the others in which I have failed. I hope that these and similar experiments may be pursued by those who have time to try them more fully than I can at present.

Discussion.

F. L. Harris said that the method of grafting the gooseberry described was not always effectual in preventing mildew.

J. W. Manning agreed with Mr. Harris.

R. Manning said that it was not claimed to be an entire preventive of mildew. On the other hand, bushes in the ordinary low form are frequently free from mildew.

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*Theory and Practice of Horticulture, London, 1855, p. 346.

Mr. Harris said that he had bushes which were thrifty and vigorous, but did not grow any more luxuriantly than on their own roots. Plants grown in this manner have been sent out as perfectly exempt from mildew.

Benjamin G. Smith said that he had mulched thickly under his gooseberry bushes with salt hay, which had a good effect in preventing mildew.

C. M. Atkinson said that his neighbor, J. Amory, had a good crop of gooseberries every year, and free from mildew, and all his plants were trained in the usual bush form. The plants grafted standard high look very pretty in the garden. Mr. Atkinson said that in England he never saw mildew on gooseberries.

Charles M. Hovey said that peaches mildew so much in France, that it is as difficult to raise them out-doors there as it is to raise gooseberries here. In England the gooseberries grow as large as plums, and are almost as delicious. Mr. Hovey spoke of the abundance of large and delicious gooseberries, and of the feast which he had from them, when examining the Duke of Devonshire's grounds with Mr. Paxton. Covering the ground with salt hay had been recommended to prevent mildew. It is the alternations of moisture and dryness which cause it, and mulching with salt hay may prevent it. Grafting does not prevent mildew in grapes. Mr. Hovey said that he knew no influence of the stock on the scion, except in variegated leaved plants.

Mr. Atkinson said that he had known in graperies which were neglected for three years, the grapes to mildew during that time; but when they were cared for, they came up again.

J. W. Talbot asked whether the salt in the hay used by Mr. Smith preserved the grapes from mildew. Native grapes do sometimes mildew.

Mr. Smith said that he only spoke of the result of using salt hay, and did not undertake to say how it was produced. His soil is a strong loam.

The Chairman remarked that Mr. Smith's experience was very different from that of Mr. Miller, as given in the paper read.

Mr. Atkinson said that English gardeners plant their gooseberries in a western exposure, and in a shady place.

Mr. Hovey said that salt attracts moisture, and that Mr. Webber exhibited fine gooseberries from plants mulched with salt hay and watered. He thought elevating them on a high stem the worst thing that could be done.

Mr. Harris said that Mr. Webber used abundance of mulching, and a handful of salt to each plant.

Mr. Hovey said that in 1835 he had a collection of English gooseberries, which he watered thoroughly three times a day, and had as good gooseberries as ever were raised.

The Chairman remarked that mildew is not caused by dampness, as is the common idea.

O. B. Hadwen said that in his observation the gooseberry seemed to succeed well on the Missouri currant. Mildew is a fungus, which is destroyed by sulphur. He had destroyed it on the gooseberry by sprinkling with sulphur. Gooseberries are of little value in a commercial point of view. Mr. Hadwen asked whether the cut-leaved or the purple birch can be grafted on the white birch.

J. W. Manning said that all the imported cut-leaved birches are grafted on the Scotch birch, the bark of which is yellow at first and afterwards white.

Mr. Talbot said that he had grafted the shellbark hickory on the pignut early in the spring and did not succeed, but some that he grafted later did better.

Mr. Harris said that the Camperdown weeping elm may be grafted on the native with perfect success after the leaves are out, and this may apply with other deciduous trees; there may be too much sap before the leaves are formed. The Camperdown flowers a week earlier than the native, and the leaves hang on a week later.

Mr. Talbot said he had been much more successful in grafting native grapes after the leaves were put out than before.

Mr. Harris had found it the same with the foreign grapes in the house; after the shoots have grown a foot long there is no danger of failure.

Mr. Atkinson would not advise to graft the Camperdown elm on the native, for there would be ninety-nine failures out of a hundred. The bark of the Camperdown is spongy, while that of the native is hard. The Cornish elm is used in England for stocks for the Camperdown; the barks of both are alike.

Mr. Harris said that the Camperdown and native elms are as nearly alike as the weeping and native ashes. Mr. Parsons, of Flushing, has a weeping ash sixty feet high.

Mr. Atkinson said that he spoke of what he knew from experience.

Mr. Harris said that after his unsuccessful attempt to graft the

Camperdown on the native elm, he left it a month and on trying again succeeded perfectly.

Mr. Atkinson said the stock had not sap enough for the graft.

Mr. Harris said it was the same with the grape as with the elm and almost all deciduous trees; the stock should be two or three weeks more forward than the scion.

Mr. Talbot said, in answer to an inquiry how the pear succeeded when grafted on the apple, that a pear grafted on an apple by his father bore for two years and then died.

E. P. Richardson said that David A. Low, of Gloucester, told him of a Beurre Diel grafted on an apple tree which produced fruit for thirty years.

E. W. Buswell said that he had grafted pears on apples which took readily and grew finely for two or three years and then died. The Flemish Beauty, grafted on a sweet apple, produced a coarse fruit. He had a poor tree of Beurre Clairgeau on quince, from which he took grafts and inserted in three branches of a natural pear tree. When the original tree bore, the fruit was shaped like Capiaumont, and was as russety but not as large. The grafted limbs generally bore normal Clairgeaus, but one year one of the limbs produced pears of the same type as those borne by the tree from which the grafts were taken.

Joseph H. Woodford said that his father grafted half a dozen pear scions in an apple tree, and they grew as well as any scions. In two or three years a callus formed on the grafts and overlapped the stock. They soon blew out; none of them lasted more than five years.

The Chairman suggested that some varieties of the apple might be more congenial to the pear than others.

Mr. Talbot said that Mr. Richardson's statement concerning the Beurre Diel would seem to make the Chairman's suggestion probable.

Mr. Smith said that he had grafted pears on mountain ash, and and got two crops of inferior fruit, after which they died.

Robert Manning said that he knew, some years ago, a Winter Nelis pear tree grafted on a mountain ash, which bore good crops of good fruit. In the early days of fruit culture in the West, when pear stocks were scarce, pears were frequently grafted on apples, but the practice was abandoned as soon as pear stocks could be procured. The Seckel was thought to succeed better on the apple than most kinds. His father had scions of Seckel sent him, cut from grafts

on an apple stock; they were inserted in limbs of a large apple tree, but never amounted to anything.

J. W. Manning spoke of a Seckel on mountain ash which bore good crops for several years.

The Chairman remarked that the Winter Nelis, being of a fine, wiry growth, might adapt itself to the mountain ash. He had budded ten thousand *Pyrus Japonica* seedlings with pears, which grew well on it. Duchesse d'Angouleme buds made a growth of four feet, and the average was greater than that of pears on the common quince. He thought it would make a good stock for dwarf pear trees. It behooves us to exercise more care than we have formerly taken in the selection of stocks.

M. H. Merriam said it would be of much interest to observe the effect of the *Pyrus Japonica* stock on different varieties of the pear. At present our knowledge of stocks is so indefinite that we cannot predicate anything upon it. Stocks may be of fine quality of fruit, yet incapable of a vigorous reproduction of their characteristics in the scion. The questions arise whether affinities are governed by botanical arrangement, and whether in the stocks and scions which unite best the sap is chemically alike. The subject suggests a thousand questions which we cannot answer at present.

Mr. Talbot expressed the hope that we had commenced a work which would result beneficially, and thought that hereafter we should all look at our old bearing trees more carefully.

Aaron D. Capen said that thirty years ago he bought two hundred French seedling pear stocks, which had now dwindled down to one. This was grafted with Seckel from a tree which has invariably borne good fruit, but the graft has never borne two quarts of marketable fruit.

The Chairman said that several years since he was offered, by a Massachusetts nurseryman, stocks that were never injured by the disease known as leaf-blight, and he was induced to buy a few thousand at a large price. This instance only proved to be a dishonest trick in the person offering them, but it suggests the possibility of a stock less subject to blight. A variety from Japan seems to be entirely free from leaf-blight. He thought we should find some pear stock as much better than others as the Manetti is better than others for roses.

It was announced that on the next Saturday, Professor W. G. Farlow, of Harvard University, would lecture on Fungi.

MEETING FOR DISCUSSION.

Saturday, February 8, 1879.

William C. Strong, Chairman of the Committee on Discussion, presided, and introduced Dr. William G. Farlow, Professor of Cryptogamic Botany in Harvard University, who delivered a lecture, of which the substance is here given, on the

Diseases of Forest Trees.

Professor Farlow, for the purposes of this lecture, classed as Forest Trees all those not cultivated in gardens. He said that it was difficult to define disease in trees, as well as in man. Plants, unlike animals, are not subject to functional diseases, but only to such as in animals are accompanied by alterations in the tissues. The diseases of trees progress slowly, but go on for many years. They may be divided into three classes: first, those caused by insects; second, those caused by fungi; and, third, those called spontaneous, a term used to express our ignorance of their cause. Prof. Farlow said that he should omit the first and third classes, and speak only of the diseases caused by fungi.

Every fungus consists of two parts, the vegetative and the fructifying. The former appears in the shape of white threads, known as mycelium, and the fruit consists of bodies more or less round, and called by the general name of spores. Fungi are divided into several large groups or orders, most of which include species which attack trees. In mushrooms or toadstools the cap is only an arrangement for bearing the fruit. Of the toadstools which grow upon trees, many do considerable harm. The most common of those found upon trees is the *Agaricus melleus*, or, as it is called in Germany, *hallimasch*. The cap, which is the most prominent part, is not that which does the injury, but the delicate cells of the mycelium penetrate the wood and cause a rotting—not to be confounded with what is vulgarly called dry rot. A specimen of the mycelium, looking like dirty paper or felt, was shown by Prof. Farlow. Another was shown in a hardened condition, looking like roots. The spores of this species fall on the bark, and grow there. The mycelium will not stand the cold until the threads of which it is composed assume a black and hardened condition. In warm weather the hardened mass softens again. This fungus is

instructive because it is so injurious to forest trees, and shows its changes so plainly. The punks all belong to the same class with the mushrooms. A specimen was shown, which, unlike the mushrooms, grew laterally from the tree, without any stalk. Another species was shown, consisting of finger-shaped masses, with flocculent masses attached, and having the spores in pits, covering the whole surface. This is the type of another large class, and is a help to those who clear land of wood. It absorbs the cells and cell walls, until the whole mass rots away. Another fungus, which was shown, is known as Indian paint. It was cut from a piece of bark, the remnant of the tree on which the fungus grew, but of which only traces of the trunk were left. The red color from which this species takes its name is caused by decay of the cells of the bark. Another species from San Bernardino Pass, also called Indian paint, was shown. The color of this is caused by the spores, but it is doubtful whether the species last shown was ever really used for paint.

Fungi closely related to the blights and rusts on wheat and other grain, are also found on trees, where their character is more permanent, and where they cause some of the most important diseases. A portion of the swollen trunk of a pine from California was shown, having a fungus of a pale yellow color, which, when fresh, was a brilliant red. The branches of the white cedar and other conifers, are found distorted into a mass resembling a nest in appearance, which is caused by a rust.

The rusts show great variations in character, and pass through transformations, like insects. One called the red cedar apple, late in May consists of a bright orange-colored mass. When dry, it is smaller and of a brownish color, consisting of swollen stems of cedar, from which the conical substance of the fungus projects. It is very gelatinous, and in rainy weather swells up into the orange-colored mass, consisting of spores. In three or four weeks, or earlier in a heavy rain, the mass is washed away, and the contents of the cells pass out into tubes, which give out other bodies. These bodies, sown on the leaves of hawthorn, crab, or mountain ash, produce a secondary form, appearing in red patches on the upper sides of the leaves. These patches consist of horn-shaped bodies, which are sacs, and come from threads which grew from the spores. These sacs contain one-celled spores, which when sown on the red cedar produce the original form. This is one of the

simplest kinds of rusts. Its different forms were shown by magnified and colored diagrams, and an incidental view was given of sacs on the upper side of the leaves. It will be seen from this that in studying rusts on forest trees we must study two kinds of trees.

Rusts produce distortions of the stems of trees. One species, which grows out into orange-colored points, causes a slight swelling the first year, after which the points drop off, the mycelium remaining behind. The tree tries to grow around the swelling, but the spawn grows through the wood, and the tree again attempts to grow around it. The result, in a few years, is a swelling which remains after the fungus dies. Another fungus, which looks like a brownish mass, and swells up when moistened, produces so large a knot as to cut off the nourishment from the branch above, which consequently dies, and is blown off by the wind. Such branches are called by the Germans *hexenbesen*, or witches' brooms.

A portion of a Norway Spruce cone was shown, covered with a fungus in spots, looking like eggs. This is not a delicate fungus like most of the rusts.

A fungus was shown from the Bussey Arboretum, found on *Pinus ponderosa*, early in spring, with white cups around stalks. It is botanically related to the cedar apple. This is the secondary form, the primary form being unknown. It makes its appearance in bright masses and weakens the tree.

An alder from Missouri was shown, with a swelling caused by a rare and extremely small fungus. This is an internal parasite; each cell gets into a cell of the mother plant. It is a very low form.

In answer to the question at what age trees are most likely to be injured by fungi, Prof. Farlow said that young seedling trees were comparatively seldom attacked. With vegetables—the onion for instance—the case is different. Though he had spoken especially of rusts and excrescences, he did not wish it to be understood that swellings are always caused by rusts, but they are frequently connected.

Some knots are of insect origin, but while the insect stings and goes away the fungi remain. Knots are found on hickory trees, in regard to which it is doubtful whether they are caused by fungi or are of insect origin. The presence of fungi in knots does not prove them to be the cause. A section of a knot common on hickory trees was shown; it was deeply lobed, like young buds, and it is possible that some insect may have stung the lateral bud and

caused the leaves to swell. The next year's wood would then try to grow over it, and this would be repeated until the swelling becomes so large that it cannot grow over, and then it bursts.

Fungi appear on cultivated plants which may be caused by the presence of forest trees having the secondary forms. Prof. Farlow here spoke of the perfection to which the study of forestry has been brought in Europe, as shown by the elaborate works published on the diseases of forest trees, which are examples of the application of skill, time, and expense to the subject.

The Chairman asked whether there are any fungi having three forms on the cedar and hawthorn.

Prof. Farlow replied that there are not, but there are on grasses. This country is richer in those forms called cedar apples than Europe, and unfortunately there are many in New England. The disease in red cedar was formerly supposed to occur in the secondary form on the shad bush, but it now appears more probable that it is found on some other member of the rose family. A form in Europe, growing on the ground juniper, is supposed to be connected with the apple and pear.

The plum wart appears in spring, at first presenting a green, velvety appearance, due to thread spores which soon drop off. The part below, which was at first solid, becomes hollow, but has threads and sacs inside. Each spore consists of two parts. This fungus is the type of a large number found on trees. Two forms are found on the same tree. The mycelium irritates the trees and causes swelling. We must know the life-history of a fungus in order to prevent it, and that which causes the plum knot is less difficult to deal with than those growing on two plants. It has summer and winter spores.

The only way to destroy the plum knots is to cut them off and burn them, and in this connection it becomes important to inquire what other trees are infested with it. The Choke Cherry is worst, and the trees should all be destroyed. It is also found on the Rum Cherry and the Beach Plum, and west of Connecticut on the *Prunus Americana* and the *Prunus Chicasa*. As the knots grow they extend down the stem. The mycelium is visible long before it breaks through the epidermis. Although this fungus is a native of this country it prefers the cultivated plum to the native. Possibly grafting the cultivated plum on a species not affected (if such a one can be found) might check it. It was described as a fungus

before it was proved to cause the black knots. Several knots found on oak trees are caused by insects.

The Chairman remarked that the conditions of growth of fungi are very various.

Prof. Farlow said, on this point, that most fungi are killed by frost, but in that which causes the plum wart, there are winter spores, which ripen the middle of February. They will continue to grow and ripen after the tree is cut down. They appeared, in one instance, not to have been killed by a temperature of fifteen degrees below zero.

Charles M. Hovey remarked that at Rochester, New York, they have no black knot and no curculio.

Prof. Farlow said that the black knots appear before the curculio, and they, as well as the young fruit, present an attractive place for the curculio to deposit its eggs. Most fungous knots attract insects.

Mr. Hovey thought it was generally the case that there are no black knots where there are no curculios. He asked what produced the knots in the oak used in the manufacture of rustic furniture.

Prof. Farlow replied that there is no trace of fungi in these knots, and that they are undoubtedly caused by insects. Many fungi occur on elms and oaks. The black knot is a true parasite. Parasites are divided into two classes; first, the true parasites, which are found only on living trees, and require a particular kind of sap; and, second, saprophytes, which attack dead trees, and are found on all sorts of trunks.

Mr. Hovey remarked that Loudon gives a list of fungi found on certain trees,—the elm, for instance—and on no others.

Prof. Farlow knew one fungus peculiar to the elm in the Eastern States, *Polyporus chonchifer* Schw., but there are also several hundred species, which grow on elms as well as other trees. The public generally have but a faint idea of the number of species of fungi in existence, and how little distinction there is among them.

The Chairman asked how the spores are preserved through the winter.

Prof. Farlow said that the potato has two forms of spores, and that the history of the "resting spores" is still in doubt. An account was given by Worthington Smith, of the discovery of these resting spores, but many cryptogamists do not agree with him, regarding the question as still unsettled. Mr. Smith cultivated

potato leaves in water, which gave an opportunity for the introduction of moulds.

Mr. Hovey thought it probable that the spores were ever present in the sap of every tree. There is a green fungus in nuts, of the color of cheese mould, and he thought that the spores were introduced in the sap.

Prof. Farlow's lecture was fully illustrated by colored diagrams, representing the fungi, spores, etc., much magnified, and also by specimens in alcohol and dried specimens. It was listened to with much interest, and at the close, on motion of Leander Wetherell, a vote of thanks to the lecturer was unanimously passed.

The Chairman announced that on the next Saturday, J. W. Pierce would read a Prize Essay on Apple Culture.

MEETING FOR DISCUSSION.

SATURDAY, February 15, 1879.

A meeting for discussion was holden at 11 o'clock, W. C. Strong, Chairman of the Committee on Discussion, presiding. The following Essay, for which a prize had been awarded by the Committee, was read by the author, J. W. Pierce, of West Millbury, Mass.

THE CULTIVATION AND MARKETING OF APPLES.

The apple is undoubtedly of eastern origin. When it was first cultivated is not known. Pliny, who wrote about A. D. 70, mentions the crab and wild apples, as small and very sour, but some, he said, were remarkable for their "fine flavor and the pungency of their smell." Many varieties were cultivated about Rome, and usually bore the names of those who originated them. He mentions more than twenty varieties, none of which can be recognized, if in existence now.

The apple in its wild state is found throughout Europe and Western Asia, and grows in favorable localities as far north as 67°. It is probable that the Romans introduced it into England, when they conquered the country, although but little is known about it

until after the establishment of Christianity there, when the monks and religious leaders planted orchards, and commenced to cultivate the fruit.

The early settlers of America introduced the apple from the old world, and the Indians helped to disseminate it throughout this country. Many orchards were planted by them, some of which have given names to their localities. The apple has from the first settlement of New England been an important adjunct to the farm and garden. Hardly an old homestead can be found, without an ancient apple orchard, yet much of the fruit was ungrafted and of inferior quality, and was used mostly for making cider, of which our forefathers were very fond. Some of our choicest varieties originated in New England long ago, among which may be mentioned the Baldwin, but as grafting was not practised as universally then as now, the better varieties were not so common.

Most of our farms now contain old orchards, or scattering trees around the walls and beside the roads, which are too old to produce regular crops of choice fruit—if they were ever grafted with it—and are too high to be properly trimmed, or to admit of the economical harvesting of the fruit. Such trees are unprofitable, and are one great cause of the disrepute into which apple growing has fallen in this State—not only because they are unprofitable in themselves, but because they are the harbors of hordes of insects, which do so much to make apple growing unprofitable. The fruit on all such neglected trees will be found knurly and wormy, and to be produced only in years of plenty.

The apple is more extensively grown, and is used in more ways than any other fruit; whether cooked or raw, it is a healthful and delicious food. It is so extensively grown through our Northern States, as to form, in years of abundance, an important article of of export, and is consequently a source of national wealth. I confidently believe apple culture to be a profitable branch of husbandry, when judiciously managed.

The past season has been characterized by an immense crop of apples, and the price has fallen lower than for many years, yet I believe that the crop on young, productive trees has more than paid for the harvesting and marketing of the fruit—enough to pay as well as the ordinary farm and garden crops since the late depression in business. It is not probable that they will be as low again for years.

But the questions which present themselves most forcibly to us are: How shall we make apple growing more profitable? How shall it be arranged so as to pay a sure and decided profit? To attempt to answer these questions shall be the purpose of this essay.

The Location of an orchard has an important bearing on its profitableness. It would be folly to plant apple trees on land near our cities and large villages, which has a high value for building lots, and expect the fruit to pay the interest and taxes on such land. It is equally useless to plant on poor, gravelly, or wet soils. If the orchard is located on a southern slope, or is protected by woodlands or hedges, it will usually be found to be more fruitful, and the fruit will be of a better color, and will be blown off less by high winds in autumn.

Soils which will produce good crops of corn will usually produce good apples, but a retentive clay loam will be found better adapted to apple growing than lighter and more sandy loams. The apple requires a soil well stocked with lime and potash, as well as phosphate of lime. Our clay loams are usually rich in potash and lime, and, with the addition of phosphoric acid in bones, are well suited to the growth of the apple. Many advocate the planting of orchards on steep hill-sides, and on land too rocky to admit of cultivation. Such localities are not desirable unless the soil is naturally very rich, or can be pastured with swine or fowls, or possibly with sheep. Seldom will orchards which cannot be plowed and cultivated be found remunerative, unless the soil is worked over by swine.

The Selection of Varieties has an important bearing on the profitableness of apple culture. A large number of varieties are desirable for home use, but for the market a few standard varieties are more profitable. Early summer, late fall, and winter varieties, are at present more profitable for the market than early fall kinds. There are too many September apples. The Porter is an excellent apple, but there are too many of them. All kinds which ripen during warm weather must be disposed of at once, and the superabundance of these fall apples, forced upon the market during warm weather, breaks the market, and when prices are once down it is hard to get much advance the same season. I believe winter apples are much lower than they would have been if the fall apples had not been forced on the market so rapidly as to break the prices down.

Red skinned apples are better for market than yellow or green

ones, because their color makes them more attractive, and they bear handling much better; slight bruises do not show so much on them. I would recommend those who have a superabundance of fall apples to graft a portion of them over with Hubbardston Nonsuch or winter apples. For the market I would recommend the following varieties as the most profitable: Early Harvest, Williams, Large Yellow Bough, Gravenstein, Pumpkin Sweet, Hubbardston Nonsuch, Blue Pearmain, Baldwin, Northern Spy, Rhode Island Greening, King of Tompkins County, and, on soils suited to it, the Roxbury Russet, as best of all for profit. I recognize the Porter as a superior apple, but with the present surplus of them, and other apples ripening at the same time, I hesitate to recommend it for profitable orcharding.

Preparation of the Soil and Planting. — Many writers on fruit culture advocate expensive preparation of the land for orcharding, such as subsoiling, or trenching, with very heavy manuring, and cultivation for a number of years, but such operations are not necessary, and as they add materially to the cost of an orchard they are not to be recommended. It is desirable that land for an orchard be in good heart, with a deep soil, and if it has been under cultivation a number of years so much the better; but if I had a piece of land on which I wished to plant an orchard, I should do so at once, without waiting several years to enrich and cultivate the soil. It is better to plant at once and then proceed to cultivate and manure, and have the trees growing while you are doing so. The interest on fifty dollars extra, spent before an orchard is planted, may increase it to a hundred dollars before the trees are ready to bear; then we shall have to get the interest on an extra fifty dollars out of the orchard, after it does bear. When, as in the past season, apples sell for but little more than enough to pay for harvesting and marketing, it is important, in order to make apple growing profitable, that the orchard should represent as small an investment of capital as is possible without lessening its productiveness.

Having decided to plant a certain piece of land with apple trees, and the season for planting having arrived, go to the nearest nursery where you can purchase thrifty young trees of the varieties you wish for, at reasonable prices, and select your own trees. Take them home and plant at once, before the roots become dry and dead. In planting set the trees not less than thirty-three feet apart, each way, and dig the holes large enough to admit of setting them

a little deeper than they were in the nursery, and having wet the roots, place them in their natural position, cutting the ragged ends off smooth, and remove half of the top. Place the surface soil in the bottom of the hole, and add a little compost, if available, but never green or strong manure—and fill on top with the lower soil, banking the tree up somewhat to steady it.

Manure and its Application.—It is useless to expect an orchard to bear continual crops of choice fruit without manure. When trees are quite young, stable manure is perhaps the best that can be used, as it furnishes all the elements of plant food, to a greater or less extent, and it also warms and lightens the soil, and favors the rapid development of roots, and a vigorous growth of wood. But after an orchard is large enough to bear, if fertilizers especially adapted to the soil and the fruit are used in connection with stable manure, they will be found best calculated to promote fruitfulness. Stable manure tends more to growth of wood than to fruitfulness. It contains too much organic matter, especially if applied in a raw state. The apple cannot flourish and be remunerative without an abundant supply of lime, potash, and phosphoric acid. The lime enters largely into the ash of the wood and bark. The potash is also abundant in the ash, and is essential to the formation of the starch and sugar which enters so largely into the fruit. Phosphoric acid not only forms an important element in the ash, but tends to increase the fibrous roots, which enables the tree to absorb more food, and it also has a tendency to increase the fruitfulness and the development of seed, and we know that in nature the fruit is only produced to aid in the perfection of the seed. Theory and experience both teach that wood ashes, either leached or unleached, are the best special manure we can apply to an orchard. Where they are not available, superphosphate of lime and sulphate of potash may be used with success. The manure should be applied broadcast, and should be worked in lightly with the plough and harrow, but if the orchard is in grass the rains will carry it down to the roots in time. Do not fear that it will blow away.

Cultivation. — Nearly all, if not all, writers on fruit culture are agreed that a young orchard should be kept under cultivation for a number of years after it is set out. But many are advocating, especially within a few years, keeping an orchard, after it commences to bear, in grass all the time, never permitting the plow to enter it, and applying the manure on the surface. That such a

system has its advantages, I will admit. Ploughing and cultivating among trees is not the most desirable work, especially for a poor teamster. The whiffletrees and harrow are apt to bark a tree occasionally with the best of care, which is not especially conducive to the health of the tree. The lower limbs must be trimmed out to admit of the working of the team under them, which obliges the tree to grow higher, and it is very much cleaner and pleasanter harvesting apples on grass land than on ploughed fields. But I believe that the advantages of cultivation very much more than offset its disadvantages, and that all orchards should be cultivated, excepting such as are located on very stony land or on steep hillsides, which wash badly when under cultivation.

The advantages of cultivation may be obtained on such land by pasturing with swine, or by confining poultry within the orchard. Indeed, the pasturing of an orchard with swine is the very best cultivation we can give it, provided they are watched and removed when they begin to gnaw the trees, which they are apt to do after the grass is all destroyed. Swine not only enrich the soil with their droppings, but they root and stir the soil, and eat all the windfalls as fast as they drop, thereby destroying hosts of worms.

An excellent system of cultivation, when convenient, would be to pasture with swine one season, plough and seed with clover the next spring, and again in the fall or the next season pasture with swine. But as many orchards are located where it is not desirable to keep swine, a different system of cultivation is required to make them profitable. In such orchards it should commence when they are first set, and be continued; or, if they have been planted and are now in grass and unproductive, or producing only inferior fruit in years of plenty, they should be ploughed and manured at once, but ploughed shallow, — not more than six inches deep, — and if the trees do not entirely shade the ground, it should be planted with some hoed crop, and be kept clean of weeds.

Similar cultivation with hoed crops should be continued every year, excepting that it may occasionally be sown with Hungarian grass, or oats and clover. It should also be manured for every crop. After an orchard is large enough to shade the ground, so as to make hoed crops unremunerative, the owner can well afford to manure, and plough and harrow occasionally, and keep grass and weeds down for the fruit only, for under such cultivation and manuring, if properly trimmed and protected from insects, the fruit

will be abundant, fair, and of large size, and will be more likely to be produced every season than in neglected orchards, and I believe will be decidedly profitable.

I know of orchards that are kept in grass which are productive, but I do not believe they are as productive, or the fruit of as good quality, as if they were ploughed and received the same treatment as they now do otherwise. By comparing the apple trees in orchards on ploughed land with those in permanent grass, on the same estate, any one may see the advantages of cultivation. I would only add that digging a few feet around a tree is a poor substitute for ploughing the whole ground, and also that in ploughing no one need fear injuring the trees by cutting a few surface roots, if he does not plough very deep. Breaking a few surface roots will do more good than harm.

Pruning. — The pruning of an orchard is an important item in its cultivation. Apple trees under good cultivation and liberal manuring are rampant growers, and if they are not frequently trimmed they will become so thick as to interfere with the harvesting of the crop, as well as to preclude its proper ripening. Light and air are as essential to the growth of fruit as food and moisture. The pruning should commence when the tree is quite small, with removing with a knife all branches which cross each other or start too low, keeping the tree well spread and open, so as to admit the light to all parts. As I believe that orchards on tillable land should be kept in constant cultivation, I would remove all limbs which would interfere with a team working under them, but that will not necessarily make them too high for convenient harvesting. An apple tree may be trimmed so as to be broad and low, and still not interfere with a team working under it.

When young trees are growing rapidly, the ends of the long branches should be cut off in September, so as to cause the wood to ripen and prevent winter killing, as well as to make them branch more. Aside from this heading in of young trees in the autumn, apple trees may be trimmed at all seasons of the year when it best suits the convenience of the owner. As far as my observation goes it makes but little difference with the health or growth of the trees. For varieties which are inclined to overbear in years of plenty, I would recommend the last of June, when the tree is full of young fruit, as the very best time to trim. By trimming a tree when it is overloaded we remove a large amount of green fruit, and virtually

thin the fruit as well as the tree, and by so doing we send all the sap into the remaining branches, and to the fruit which is set on them, and, as the result, we obtain very much larger and better colored fruit, and a better prospect of a crop the next year from the same tree. This I consider one of the means we are to use to even the production of the crop, and thereby increase the profit of the fruit. Severe pruning of the tops is also an important means, in connection with manuring and root pruning, by which we may renew the vigor of old and decayed trees and bring them into bearing. Sometimes nearly all the top of an old tree may be removed to advantage. It will send all the food taken up by the roots into the remaining branches and give them a vigorous start, and is usually followed by a good crop, if the soil is properly enriched.

Changing the Bearing Year. — One of the greatest obstacles to profitable apple culture is the habit, which most of our trees have, of bearing only in alternate years, and the bearing years coming with most of them on the even year, so called; causing over-production with low prices, one year, and followed by a scarcity the next year. If we could make our trees bear a moderate crop every year, or could make half of them bear one year, and the other half the next year, we should have a good market for our fruit at remunerative prices every year, and it would be much better for both consumer and producer. I think this habit of bearing on the even year is becoming more common than it used to be, owing, probably, to the work of insects. In a year of plenty there are a vast number of apple worms propagated, and the next year there are so many worms and so few apples that those trees which are disposed to bear are often unable to mature any fruit, because there are more worms than apples; consequently they all fall off, and the tree being relieved of its fruit early in the season, forms fruit buds, and prepares to try again the next year to produce its fruit, and as the worms and insects have been reduced in numbers by the scarcity of fruit the previous year, and as apples are abundant on other trees, this tree will soon produce a crop the even year, and ever afterwards it will be an even year tree, until something out of the common course of events interferes to change the habit.

Selecting grafts from trees which bear only in odd years, I believe to be useless. I harvested Baldwin apples last fall from trees which used to bear only in odd years; from young trees grafted

from the odd year trees, and from an old tree, one side of which used to bear one year, and the other side the next year, but which now bears only the even year. The experiment of changing the bearing year of orchards by picking off the blossoms or young fruit has been tried, and in some cases, I believe, with partial success, and in others I know it to have been a failure, probably owing to the insects. The labor is so great on large trees, which have already formed the habit of bearing only in even years, that it seems to be impracticable to change them that way, as it would probably be necessary to repeat the operation several times. But in young orchards which have not yet borne to any extent in even years, I believe it would be successful and profitable to remove all the blossoms or young fruit whenever they appear in the even years. By commencing with small trees, when they first bear, we can start them aright, and it will certainly pay to do so. Canker worms often change the bearing year of whole orchards, greatly to the owners' advantage. I wish they would come and change my own trees, but while they have favored some orchards in that way within a mile of our place, they have never reached there, to any extent. I would recommend all orchardists whose trees bear only in the years of plenty not to molest the canker worms in the spring of such a year. They should regard them as their best friends at such a time, for most likely, if let alone, they will change the bearing year of the orchards, *provided the trees are protected the following season*, and they will also drive off that pest of the orchard, the tent caterpillar. Cultivation, manuring, and proper pruning will induce a crop from many varieties nearly every year.

Insects.—There are a number of insects which attack the apple tree or fruit, among which may be mentioned the borer, which may be removed with a knife soon after it is hatched in August. Washing the trees with soapsuds in the summer, is a partial preventive. In orchards which are continually cultivated the trees will be so vigorous and grow so fast, as not to suffer materially from them, neither will they attack trees in cultivated land as much as in grass.

The canker worm is another insect which does much damage; they may be destroyed by applying printers' ink to the trunks of the trees, but it must be applied in the fall as well as in the spring. The tent caterpillar is also a great pest; they can be destroyed best by stripping the nests off and treading them under foot.

The apple worm I regard as the worst enemy we have to encoun-

ter in apple growing. He is the main cause of the scarcity of apples one year and the surplus the next, as has been already shown. Many ways have been adopted to destroy him. First and best of all is to confine the fowls in the orchard, and the swine with them when practicable. Between the hens to pick the insects, and the pigs to eat the green, wormy apples, the apple worm would stand a poor chance. I gathered the handsomest Roxbury Russets in my hen yard this fall that I ever saw grown on the place; they were as fair as Baldwins. The windfall apples should be kept picked up, and made into cider, or fed to stock, and not allowed to remain on the ground until after all the best apples are picked, and all the worms have left them and hidden away for the winter, which is a common practice in many orchards, as well as that of leaving the cider apples in heaps in the orchard. Many apple worms may be destroyed while in the chrysalis state by scraping the loose bark off the trees in early spring; also, by placing old cloths in the crotches of the trees or around the trunk when the apples are falling in September, and then going around in winter or spring and crushing them. The moths may also be caught to some extent by hanging dishes containing sweetened poison, on the trees in June, and by building fires in the orchard on summer evenings.

Harvesting. — Early apples, in years of plenty, should be gathered and sold as early as they will do, so as to get them into market before the rush of fall apples. Sold early, they will often bring good prices, while if kept longer they would not bring near so much. Most, if not all, kinds of apples are much better if allowed to get nearly or quite ripe on the tree, and winter apples as well as summer varieties, in years of scarcity, should be left on the trees until well ripened. The picking of winter apples should not commence before October 1st, and help enough should be employed to finish picking by the 15th. There is no place where fruit will keep so well as on the tree, and winter apples will be much larger, better colored, and of better flavor, if left on the trees until heavy frosts. All choice fruit on low trees should be carefully picked and carried to the barn, or other building, where they can be placed in heaps not more than two feet deep, and left exposed to the light and air until freezing weather, when they should be sorted over and placed in barrels for market or storage.

When it is desirable to keep apples for the spring market, they should be carefully sorted into clean barrels, either headed up or

not, as is most convenient, and placed in a cool, dry cellar before the weather becomes much cooler than the cellar. If not headed up, the barrels should be covered so as to exclude the outer air as much as possible. The cooler the cellar, provided it does not freeze, the better; and if the apples are headed in and the cellar is a little frosty in cold snaps, it will do no harm. The main point is to keep the cellar cool, dry, and of an even temperature, and the last point is the most important of all. Inferior fruit, or that on high trees, will seldom pay for hand picking in years of plenty, and should be shaken off as a matter of economy.

Marketing. — The profitable marketing of a crop of apples, in a season of over-production like the past, is a difficult matter. Really I do not know how to do it satisfactorily to myself. But I have usually found it most profitable to sell them in a lot to some wholesale dealer, who in years of abundance will ship them to some place where they are not so plenty. It seldom pays the grower of apples to peddle his winter apples around to houses by two or three barrels in a place. If he values his time very highly, it will cost more than the extra price obtained. When apples are sold for shipment they should be packed in clean barrels of two and a half bushels capacity. Flour barrels are commonly used for this purpose, and they should have all ends of the nails knocked off from the side of the barrel, so that they may not injure the fruit, and should be swept clean of flour. The bottom of the barrel should be covered with a layer of apples of even size and quality, placed close together, stem down, and in circular rows around the barrel head, finishing in the middle. Apples should then be filled in and occasionally shaken down until the barrel is full to the top of the chime, levelling off the top with small apples; then loosen the top hoops, press the head in, and drive the hoops tight; then line and nail the head in, taking care not to nail into the apples. Mark the faced end with the variety and quality as well as the address. In years of over-production it is doubtful whether it pays to put the second quality apples into market, as they bring but little more than they are worth for cider or to feed to stock, and they injure the sale of better apples.

Many apples have been sold in Worcester this fall for fifty cents per barrel, and I saw one man offer a barrel for forty cents. It is doubtful if he was getting enough more than they were worth to feed to stock, to pay him and his team for their time. Many care-

ful feeders estimate apples as worth ten cents per bushel to feed to stock in the barn, and I presume they are worth that.

Recapitulation. — We may make apple growing profitable by raising only a few standard varieties; by judicious manuring and continued cultivation; by protecting them from insects (excepting even year trees from the canker worms in the spring of the even year); by allowing our young orchards to bear only in the odd years; and by careful harvesting and packing for market.

Discussion.

The Chairman remarked that the apple problem had been a mighty one the past season, and the question with cultivators had been how to dispose of them. He called on Asa Clement, as an experienced orchardist, to give his views.

Mr. Clement said that he had taken a great interest in apple culture for many years, and that he was not at all discouraged by the excessive crop of last autumn and the consequent low prices. He believed that there are varieties which it will pay to grow for stock. He would feed cattle freely and make up vinegar stock when apples are plenty. He could hardly agree with the essayist that apples will grow wherever corn will; they will not generally succeed on sandy soil, though some varieties, — the Porter, for instance,—will. He thought rocky hill-sides, with granitic formations, best. The ground should be, say, moderately wet, and only so. The Baldwin tree is tender while young; there are thousands now bearing, the hearts of which are dead. Such trees produce spotted apples which are poor keepers.

Mr. Clement said that he had thought much of changing the bearing year of apples by picking off the blossoms, and had tried with Pelham Sweet and Baldwin, and was partially successful, but they all got back. He tried again on young trees last year and some of them have made fruit buds. If they bear this year he will try again. He had no doubt that the bearing year can be changed. Picking up the windfalls and feeding to stock will only partially destroy the apple worm, because many of them have already left the apples, as is shown by hanging cloths in the forks of the branches. The worms will be found to have made their chrysalides in these cloths, and they should be examined and the worms destroyed. He had been unable to satisfy himself whether they produced more

than one brood in a year, but thought they did, but that the late ones do not change into millers until the next year. He finds the millers fluttering around the windows of his fruit room early in June. These codling moths, being night flyers and nimble winged, will thwart almost any attempt to destroy them.

Mr. Clement said that he poured his apples into bins in the cellar, directly after picking last fall, and they never kept better. He has been picking over and marketing lately, and finds few wormy apples. His cellar is somewhat damp — more so than he likes — though drained. He finds it an advantage to keep the cellar as cold as possible without freezing the apples; it is so cold that he has to wear gloves in sorting them. He sends apples to market almost every day in winter, covering them up with robes.

He has an orchard on strong, rocky soil, where the wood was cleared off about thirty years ago, and has allowed the cattle to roam there, and given it no cultivation. He considers it his most profitable orchard; he gets some specimens there which draw prizes. Some of the trees would be benefited by fertilization and stirring the ground. He would not recommend the general adoption of this method. He has twenty-five odd year Baldwins, but could not account for their bearing on the off year. He hoped, when he commenced, to have as many Baldwins one year as another, for the reason that he was planting trees and grafting for a series of years, but had been disappointed. He likes to prune early in June, when the foliage is well developed; there is then no bleeding or oozing out of sap. The wound dries quickly, remains white and free from decay, and the healing process commences at once. Wounds made now will not heal as quickly as those made in June, when the sap is in full flow. He does not cover the wounds, though he believes there can be no valid objection to covering with paint which will dry quickly.

Marshall P. Wilder said that he began pruning his apple trees about the first of March, but deferred cutting large limbs until the sap is in motion. If cut early they will not heal so well. The whole pruning may be done successfully in June. He had had his trees scraped and washed with weak potash water.

Leander Wetherell spoke of the practice of Capt. Pierce, of Arlington, a very successful orchardist, of cutting out surplus wood whenever convenient, leaving about six inches of the limbs, which was cut away in June, when it would heal most quickly.

Aaron D. Capen said that he would make two cuts; the first a foot or a foot and a half from the base of the limbs. This prevents splitting down when the limb falls, and involves no extra expense.

J. W. Manning confirmed what Mr. Clement and Mr. Wilder had said in favor of cutting in June, as the time when wounds would heal most quickly. He thought from the first to the twentieth of June the best time.

J. S. Richards said that when he bought his land twenty years ago, he found on it a large, old apple tree in a decaying condition. He cleared away the stones around it, cut the head back, and stirred the ground, tearing the roots a good deal. The tree is now one of the best in his garden, and bears some of the best Baldwins produced in the neighborhood. One half of it bears in the odd year, and of six Baldwins which he bought, one has always borne the odd year.

B. P. Ware said that he pruned in March and April, partly because he had more time then. To obviate the danger of tearing down when the bark peels, he cuts an inch on the under side first. He tries to avoid the necessity of taking off large limbs, by pruning in season. He covers the wounds with liquid grafting wax, applied with a brush.

Mr. Capen thought that the season when pruning was done made so little difference, that he pruned when he felt like it. In his previous remarks he did not refer to stripping down the bark, but to splitting the wood. This would not be obviated by cutting a quarter through on the under side. He had seen a limb treated in that way, which had split down the trunk to the depth of two inches for the length of several feet. Passing by the grounds of the late Cheever Newhall some years ago, he noticed a severe pruning of an apple tree a foot thick, when the apples were an inch in diameter. The tree is still thriving.

Robert Manning said that the previous speakers had confined their remarks to the best time for pruning, solely with reference to speedy healing of the wounds, but there were other points to be considered. Pruning when the tree is in a growing state has a tendency to diminish vigor of growth, while pruning when the tree is dormant has a tendency to increase it. Therefore, if a tree is excessively vigorous it should be pruned while growing, but if deficient in vigor it should be pruned while dormant — not, however, with the idea that pruning will supply the place of manuring and

cultivation. He would by all means make two cuts in taking off a limb of any size, and believed that it would be so much more easily handled that no time would be lost in doing so. He did not approve the recommendation of the essayist to thin by pruning out limbs with young fruit on them, as this would remove leaves also, and the proportion of leaves to elaborate sap for the supply of the fruit would be no greater than before. Nor could he approve of shortening vigorous shoots in September so much as to cause them to branch that season. The branches would be more likely to be killed than if they had not been shortened. They should be shortened only so as to check their growth and cause the wood to ripen.

The Chairman thought that the principles stated by Mr. Manning were correct. Apple trees might be pruned in autumn, but should not be cut close until June. He would cover the wounds, and the longer they were made before the growing season the more need there would be for this.

Mr. Wilder spoke of the need of judgment and experience in pruning. He once sent an inexperienced man to prune a tree, who took off one third of the top of the tree on one side.

Robert Watt would cover wounds with paint, as more durable than shellac. He had no preference as to season, but would prune a tree in form of an inflated balloon rather than in form of a broom. Regard must be had in pruning to the habit of growth of the variety; Large Yellow Bough, Baldwin, Roxbury Russet, Danvers Winter Sweet, and Northern Spy, should not be pruned alike.

Mr. Wilder said that O. B. Hadwen, of Worcester, fed twelve bushels of apples a day to his stock of fifty head of cattle. There had been 200,000 barrels of apples, of the last crop, exported from Boston, and these were mostly grown in New England, but the profit to the exporters had been but four and a half cents a barrel. The method of packing described by Mr. Pierce is almost universally adopted; the barrels are placed under a screw and the head pressed down tightly, as it is absolutely necessary that the apples shall not rattle in the barrel. American apples are preferred in England to those of French or Italian growth, and Mr. Wilder urged the great importance of maintaining the reputation of our fruit and preserving the market.

Mr. Wetherell said that New England apples were better flavored than the same varieties grown in Indiana, as he was informed by

those who purchased apples sent from Springfield, Mass., to Indiana, for canning purposes.

Mr. Wilder added that our apples are better than those of California or the Western States generally. He spoke of Mr. Brown, of Lunenburg, who got three dollars a barrel for his Baldwins, which he kept in a cellar under the north side of his barn. In pruning we should begin early, so as never to need anything more than a knife. He would always cover the wound if of considerable size. The philosophy of changing the bearing year is well understood. Any apple or other tree which bears an excessive crop cannot make fruit buds for another year. He would never have grass in an orchard.

C. M. Atkinson had heard that the late Frederic Tudor cut off all the fruit of his apple trees in the even year. The speaker had seen extraordinary trees and crops in Herefordshire, the great apple producing county of England. The practice there is to plant the stocks in the orchard, and graft afterwards at the height of six or eight feet. There is always good grazing among the trees, and colts, pigs, and hens run among them, but no cows. The trees are too high to browse. Mr. Atkinson said he would adopt this plan if he were planting an orchard. He keeps many hens, which are always busy among the trees, and are the best preventive of insects.

E. W. Buswell asked why all the Baldwin trees bore the even year.

A. W. Cheever replied that there were two reasons why the crop of 1878 was unusually large,—first, because of the unusually small crop in 1877, and, second, that small crop produced few insects to destroy the crop of 1878. This year the crop will be small, both from the exhaustion of the trees and from the many insects reared by the abundant crop of 1878. To produce fruit in the odd year we must not only pick off all the blossoms in the even year, but secure the fruit of the odd year from the depredations of insects, which can only be done by destroying the eggs in the year of plenty. Apple insects do not generally migrate far, which is in our favor, especially in isolated orchards. The speaker had seen twenty-five punctures of insects in a single apple. Capt. Pierce, whose skill as an orchardist had been referred to, made the final cut in pruning at nearly a right angle with the limb, so that the cut surface was smaller than if parallel with the trunk.

Mr. Wilder remarked that tempests sometimes change the bearing year.

Mr. Pierce, in reply to a remark that he had recommended propagating insects, said that he did not, but only advised that they be permitted to destroy a single crop. If they had been allowed to destroy the foliage of an orchard last spring, it would probably produce a crop the coming season. He did not advise, in packing apples, to finish off with a whole layer of small apples, but only to use a few to even the surface by filling chinks where large ones would not go. Every shipper says, *be sure and press the head in hard.*

E. W. Wood said that apples were more difficult to dispose of this year than to grow, and the great question for orchardists is, how to dispose of their fruit at a profit. He thought the essayist very modest in his estimate of the profit of the apple crop. If we can get a paying crop only once in two years it is hardly worth while to cultivate an orchard. The speaker knew one orchardist who put up seven hundred barrels of apples in October and November last for export, which yielded him a net return of a dollar and a half per barrel.

Mr. Wilder expressed the great pleasure he felt in meeting so many gentlemen who have spent their lives in the study of fruit-growing and in hearing their views on the culture of the apple.

On motion of Mr. Wetherell it was voted that the discussion of the subject be continued on the next Saturday.

The Chairman gave notice, in behalf of the Library Committee, that a book would be kept by the Librarian in which members are requested to record the titles of books, which they desire to have added to the Library.

MEETING FOR DISCUSSION,

SATURDAY, January 22, 1879.

A meeting for discussion was holden at 11 o'clock, W. C. Strong, Chairman of the Committee on Discussion, presiding. The subject was Apple Culture, continued from the previous week.

The Chairman remarked that it was useless to say that we must confine ourselves to the knife in pruning, for with the utmost care

and most constant watchfulness there would be limbs which must be removed when so large that a saw would be necessary.

O. B. Hadwen said that he had had much experience in pruning, and liked to hear the theory discussed, but when we come to practice we find no two orchards are circumstanced alike, and we have to drop theory. If a man could do just as he would like to, he would better prune in April or May. Formerly it was thought best to prune earlier. The sap elaborated in the growing season descends to the roots, where it remains in store some time, and if wood is removed in April or earlier you have the sap still in store to give increased force to the growing wood. Pruning with the knife is all very well if you begin in season, with young trees, and never let them get out of hand.

Leander Wetherell, by request of the Chairman, again spoke of the orchard of Capt. Pierce, at Arlington, which the owner kept in the highest condition. He believed in cultivation and planted squashes in the spaces between the trees. He mulched under the trees with salt hay, which saved the fruit from bruising, and gathered and marketed it as soon as it fell. He removed the greater part of the wood which needed to be pruned out, when it suited his convenience, and finished early in June. He cut with reference to healing over and thus prevented decay. He practised this method for many years, and John Cummings and others pronounced his trees in the best condition they had ever seen, and their owner the King of Orchardists. Others had cut down their trees on account of canker worms, but Capt. Pierce protected his against these insects by tarred bands. The pruning knife is very well in young orchards but old trees require to have large limbs or dead wood removed.

Mr. Hadwen approved of Capt. Pierce's practice of making the final cut in June.

The Chairman remarked that this seemed to be the prevailing opinion.

Josiah Crosby said that when orchards are cultivated it is injurious to the crops to travel over the land in May and June. He leased some of Capt. Pierce's land, and preferred to have the owner take off such limbs of the trees as he thought best, but the lessee was required to cut off the stumps by the tenth of June. The land was not sufficiently strong for a crop of grass in addition to the trees.

E. W. Wood said that if New England apples are of the best quality, and so much land is given to them, and so large a surplus raised, it would be well to consider carefully the disposal of the surplus. The President of the American Pomological Society has told us that the market for American apples in Europe is as well established as that for our wheat, and we have the advantage of being near the shipping port. We sometimes see discouraging paragraphs in regard to the profit of the apple crop, but has not the unprofitableness grown out of irregular transactions? He had known of inferior fruit being sent to Europe in the hope of selling on the reputation of honest dealers. In selling a cargo only a few barrels are opened, and the whole is sold by these samples. Shippers of good apples have been under the necessity of putting a private mark on the barrels, but this trouble will right itself in time. A gentleman was present at the last meeting who shipped last fall seven hundred barrels, which returned him a dollar and a half per barrel. At this price apples will pay better than any other fruit.

Mr. Wetherell referred to an interesting discussion at the late meeting of the Western New York Horticultural Society, when, in considering the foreign market for fruit, it was stated that the Europeans do not like Yankee tricks—they do not like to find a pumpkin in the middle of a barrel of apples. Such things had injured the reputation of our products, while one exporter, whose apples were always known as good, found a sale for them in Russia at seven dollars per barrel, and another reported his as sold in Scotland for ten dollars. It was thought that there was very little danger of over-production, if fruit was well grown and put up. A case was mentioned where apples which had been carefully thinned brought two dollars per barrel, when ordinary specimens were selling for one dollar and less. The home market of Rochester was said to be very poor, the best apples being all sent away, and the people of Rochester not wanting the inferior fruit, but it was thought that the market might be built up. The old way of producing fruit was said to have gone by, and only the best was profitable. Among other points discussed was the ventilation and size of barrels; large barrels were preferred. Fruit found a ready market when well assorted and put up honestly.

The Chairman said there is no doubt that public opinion is that apple raising here is not profitable.

Mr. Wood referred to the statement of the essayist that the attempt to produce odd year Baldwins by grafting from such trees was a failure, and said that if correct it was a strong point in favor of the view that the stock influences the graft. In regard to varieties for shipping, the Newtown Pippin is as well or better known in London than in Boston. The varieties shipped so successfully by the gentleman previously mentioned by the speaker were the Baldwin and the Hubbardston. He will this year graft one hundred trees with Hubbardston.

J. W. Manning read a letter from E. C. Shirley, of Goffstown, N. H., who has an orchard, the seed of which was all planted in one day; the trees were budded in one day; the buds were taken from the same tree, and the trees were all set in the orchard in one day, yet when they came to bear, one half bore the odd year and have continued to do so ever since. The trees are now twenty-five years old, and though some of them bore so heavily last year that they broke down, the odd year trees had not an apple on them. A very remarkable point connected with this orchard is that no other trees taken from the same nursery bore the odd year. Mr. Shirley has one other orchard, but only two trees in it bear the odd year. He believes that locality has much to do with the matter, all the old natural fruits in that locality having for the last fifty years shown the same peculiarity as this new Baldwin orchard, and he knows of two other farms in this locality which bear out this theory.

Rev. A. B. Muzzey said that he had heard of taking off half the blossoms of an apple tree to change the bearing year, and asked whether it would be effectual.

Mr. Wood said that that point was thoroughly investigated by the Newton Horticultural Society a few years ago. The President, J. F. C. Hyde, while on a visit to Marshfield, noticed an orchard of two acres in full bearing, the off year. The owner was absent, but the neighbors reported that he removed all the blossoms in the even year. The Newton orchardists discredited this statement, and a committee was chosen to visit Marshfield, and inquire into the subject. The owner gave them substantially the same account. Some varieties were more perfectly changed than others. The Baldwin showed more inclination to return to its old habit than any other variety.

Mr. Hadwen said he recognized the fact that the bearing year is

the even year, but under favorable conditions we get a crop the odd year.

John B. Moore had known the bearing of an orchard changed from the even to the odd year by canker worms. This was eight or ten years ago, and the trees have not generally reverted. He had also known the bearing year changed by late frost, which destroyed the blossoms. He had apple blossoms killed twenty years ago, and the trees have not reverted. The same causes might change the bearing back to the even year.

J. W. Manning said that in even years farmers have a great surplus of apples, and in odd years not enough for their own use. He had known experiments commenced to ascertain whether the property of bearing in the odd year is transmissible by grafting, but such experiments require many years, and either the experimenters do not live long enough, or the grounds and trees change hands and the thing is forgotten.

Mr. Hadwen said that in forty years he had had more or less odd year Baldwins, yet but few compared with the crops of even years, and the odd year trees sometimes bear some in even years. In 1844 he planted six odd year Baldwin trees which he bought of John A. Kenrick, and they have borne in the odd year. They have not failed to bear for a single year, but they bear most in the odd year. He has a natural tree with two large branches, one of which has, for thirty years, borne in the odd and the other in the even year.

Mr. Wetherell asked, whether a scion from a tree whose bearing year was changed by frost or canker worms would transmit this peculiarity. His experience was that it would. He obtained scions of odd year Baldwins from the late James Eustis, which retained the habit of bearing in the odd year, and produced very fine fruit.

Caleb Bates said that he had six large Baldwin trees, standing closely, and half of one in the centre bears the odd year, and has done so for a series of years, giving the row a very strange appearance. If we could find how to produce this effect and get a patent on it, it would be valuable. A gentleman from Duxbury brought him Baldwin apples on the odd year, and when asked how he got them said that he cultivated well and mulched heavily with sea-weed, and they bore a moderate crop every year.

Aaron D. Capen spoke of a tree grafted from a single scion, of

which half bore the odd year and half the even year. No cause could be assigned for it except the burial of a three hundred pound hog on one side of the tree.

Mr. Bates said that his trees were originally the Holmes apple, and that a large number of grafts were put into each tree.

Loring Johnson said that he had a tree which illustrated the possibility of changing the bearing year. It is a sweet apple, and a very strict alternate bearer. Twelve or fifteen years ago, there came, early in August, when the tree was heavily laden, a violent southeast gale and stripped half the tree of its fruit. The next year the part denuded of its fruit blossomed and bore a heavy crop; the other half bore nothing, and the tree has continued so. In reply to an inquiry why young trees just coming into bearing fall into regular order of bearing only on the even year, and why trees whose bearing year has been artificially changed tend to revert to the even year, he said that he believed it due to the abundance of insects bred in the even year, and the comparatively small quantity of fruit on the odd year. The tendency to revert in trees which have been artificially changed is much less in those which bloom profusely on the odd year than in those which bloom but moderately, because the former can bear the loss by insects better. Trees which naturally bear a moderate crop will bear more or less every year, but on the odd year the fruit will be of inferior quality.

Mr. Bates said that over-bearing is injurious to trees, and that, if practicable, it is well to thin the fruit, and then the trees will bear every year.

M. H. Merriam said that he had many apple trees scattered over his place, mostly Baldwins, and that in ten years that he had been on it he had had two large and three medium crops, with five failures. Last year those in grass did as well as those in cultivated ground.

J. W. Manning knew a tree in Chelmsford which had the blossoms on one side destroyed by a snow storm, and that half afterwards bore on the odd year.

R. Manning gave an account of an attempt which he made to change the bearing year of a Baldwin apple tree by picking off the blossoms. The tree was at least twenty years old, and large enough to bear five barrels of apples, and it took three days of steady work to remove the blossoms. The next year it bore a moderate crop, but a larger proportion than usual of the apples were injured

by the codling moth. The third year, when a full crop was hoped for, the whole crop of fruit of every kind was destroyed, and this tree reverted to the even year. Not discouraged he picked off the blossoms again, and this proving ineffectual he tried it a third time, with no better success. He then concluded that it was hard to teach an old apple tree new tricks, and gave it up. He, however, advised that the experiment be tried and followed up with young trees. He mentioned, incidentally, that the first time the blossoms were picked off, the clusters on a part of the tree were counted, and an estimate made of the whole number of flowers. It was found that there were from 80,000 to 100,000, and as a full crop of apples would not exceed 2,000 or 2,500 in number, not more than one blossom in forty produced a sound apple.

Edward Appleton had a tree ten inches thick from which he picked off the blossoms in 1872, but the experiment was unsuccessful, the tree bearing only about a dozen apples the next year, and it has never borne a fair crop since.

Mr. Johnson said that the bearing year of a large number of orchards in Rockport was changed by canker worms, which fortunately happened to leave in the odd year.

Mr. Bates said that he once found fourteen chrysalides of the tent caterpillar around the inside of a bucket, turned bottom up, which in one night had their entrails sucked out by two brown measure worms, about an inch and a quarter long. He thought this worm would be worth cultivating, but he believed that the sparrows eat the measure worms and leave the caterpillars.

The Chairman expressed his belief that on land not too costly, and taking one year with another, the culture of apples in New England is profitable. He suggested the appointment of a committee to inquire into the general subject of apple culture, and particularly the profit and the export trade, and report at a future meeting. The suggestion was approved, and E. W. Wood, L. Wetherell, and J. W. Manning were appointed such a committee.

Rev. A. B. Muzzey, of the Committee on Discussion, announced that on account of the Business Meeting of the Society, on the next Saturday there would be no Meeting for Discussion, but that on the following Saturday (March 8), W. C. Strong, Chairman of the Committee on Discussion, would read an Essay on the Culture of Roses.

BUSINESS MEETING.

SATURDAY, March 1, 1879.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President C. H. B. Breck in the chair.

W. C. Strong, from the Executive Committee, reported in regard to the celebration of the Semi-Centennial Anniversary of the Society, that the Committee deemed it expedient to celebrate the occasion by a collation and address in connection with the June Exhibition, and that they had invited Marshall P. Wilder to deliver the address. Also that a Sub-Committee of the Executive Committee, consisting of President Gray, Marshall P. Wilder, and W. C. Strong, together with the Committee of Arrangements for the Annual Exhibitions, be a Committee to make all necessary arrangements for the occasion. The report was accepted.

Marshall P. Wilder, Chairman of the Committee to prepare resolutions on the decease of Dr. Bigelow, submitted the following:—

Whereas, It has pleased the Supreme Disposer of all events to close the life of the oldest member of this Society, our honored and beloved associate, Dr. Jacob Bigelow, it becomes us to express our grief for his loss, our gratitude for his many public services, and our esteem and veneration for his character and virtues,—therefore

Resolved, That we will ever treasure up, as among the choicest associations of our Society, the recollection of the many services rendered to it by Dr. Bigelow, its first Corresponding Secretary. We would especially remember that he was the first to make the suggestion of a rural cemetery, which afterwards led to the establishment of Mount Auburn by this Society. And while acknowledging his eminence in his profession and in science generally, as shown by his Presidency of the Massachusetts Medical Society and of the American Academy of Arts and Sciences, his share in founding the Massachusetts Institute of Technology, and his medical and scientific works, we would here especially recall his "Florula Bostoniensis" and his "American Medical Botany," published more than sixty years ago, as among the most accurate works on American Botany.

Resolved, That we sincerely sympathize with the surviving members of his family in the loss they have sustained, and that a copy

of these proceedings be forwarded to them as a testimonial of our regard for his eminent services in behalf of this Society and the community in which he was so long honored and esteemed.

Rev. A. B. Muzzey said that he knew Dr. Bigelow very early in life, and that later he was his family physician, and he was brought into contact with him in various ways. He was a man of integrity, veracity, and uprightness, but there were two points in his character which were especially noticeable: first, he was deliberate in all things, particularly in his utterance; and, second, he was remarkable for impressing his views by reiteration, when his conclusions were formed. His works on Nature in Disease, and on Self Limited Diseases have wrought a revolution in medical practice. He was Professor of Materia Medica and of Technology at the same time. He stood near the summit as a practitioner of medicine, and excelled in science. His knowledge of botany was unquestioned. He was a firm friend of Mount Auburn Cemetery, and continued steadfast through life. To him the cemetery is indebted for the designs for the gateway, fence, chapel, and tower. His inventive mind was shown in the word "Technology," which he originated as the title of one of his works.

Remarks were also made by Mr. Wilder, John G. Barker, and E. H. Hitchings, and the resolutions were unanimously passed.

On motion of John C. Hovey, it was unanimously voted, That the Committee of Arrangements for the Annual Exhibitions also superintend the March and November exhibitions of the Society.

E. W. Buswell announced the decease, since the last meeting of the Society, of John M. Merrick, of Walpole, and moved the appointment of a committee to prepare memorial resolutions. The Chair appointed as that Committee, William E. Endicott, Marshall P. Wilder and John C. Hovey.

Mrs. Alice J. Dolbear, of Somerville,

was elected a Subscription Member of the Society.

Meeting dissolved.

MEETING FOR DISCUSSION.

SATURDAY, March 8, 1879.

A meeting for discussion was holden at 11 o'clock, when the following paper was read by W. C. Strong, Chairman of the Committee on Discussion, who called Aaron D. Capen to the chair.

ROSES.

From the great diversity of fruits of our climate we cannot select any one and crown it king. The strawberry takes the most lowly position, yet who shall say it must yield in rank to the lordly pear or the buxom apple? These and other species have equal sway in their seasons. So with vegetables; we cannot single out any one kind as superior to all others. Many, if not all, are alike good.

But in the floral kingdom, is it not agreed that the Rose is *facile princeps?* We are not forgetful of the exceeding loveliness and purity of the Lily, sometimes gorgeous in array, transcending all the glory of Solomon. And yet, in richness, and fulness, and wealth of beauty; in bloom, in verdure, and in fragrance, do we not with one acclaim crown the Rose as queen? Is it not the climax of loveliness in the vegetable creation? But we are so filled with the spirit of republican institutions in this country, that I sometimes think we are not as loyal to our queen as in duty bound we should be. The market, indeed, indicates a generous appreciation. "Roses a specialty," is the motto of all our florists. The demand and the price for this flower largely exceed that for all others combined. But can we say that the culture of the rose is extended throughout the community as generally as it should be, considering its quality? There are difficulties in its culture (easily met, it is true, but serious if neglected,) which have discouraged many. Our societies have given no special stimulus to this branch. Throughout the country towns of New England the gardens are not relatively as well supplied with roses as in the days of our fathers. The knowledge of the vast advance in hardy hybrid roses during the past thirty years, has scarcely extended beyond the limits of the trade. Is there not need of effort to awaken public interest in this direction? It may be well to note what has been and is being done in England, as an indication of what we may also do.

The exhibition of roses has been coeval with the existence of horticultural societies. Yet it was as late as the year 1857 that the enthusiastic amateur rosarian, S. Reynolds Hole, first suggested the idea of a National Rose Show, independent of all the societies. Acting upon his suggestion the first national exhibition was held in St. James Hall, London, July 1, 1858, the rent of the hall for the day (30 guineas) and the prize money (£156) being raised by subscription. So successful was the experiment, so appreciative was the public, so great has been the enthusiasm which has grown out of this beginning, that at the present time at least fourteen national rose shows are held annually, and over £3,000 of prize money is distributed, besides a vast number of local and society shows, in England and Scotland alone. At all these exhibitions numerous prizes are offered for the various classes, the amounts often running as high as £12, £9, and £6, for first, second, and third premiums. The result is that a general public interest is awakened, and the land is full of roses of marvellous and constantly improving excellence. It is estimated that the annual sale of rose plants is from two to three millions, almost entirely for home consumption, notwithstanding the trees are very much longer lived, on the average, than they are with us. And there is a wide-awake aim for advancement. During the past thirteen years over six hundred new French roses and over fifty English seedlings have been entered in the catalogues. Undoubtedly many of these are proving to be reproductions, or only slight improvements on older kinds, but yet it is obvious, upon a single glance at the prize varieties, that a marvellous improvement has been obtained. In the Rose Election List for the year 1877, which is, as is known, a condensed summary of the latest opinions of the first prize takers, I find Charles Lefebvre is the oldest variety named among the list of the twelve best, and it had only attained the age of sixteen years. Eight out of the twelve were under ten years of age. In the first twenty-four varieties, more than half are under ten years, and Senateur Vaisse, introduced in 1859, is senior. In short, we find that with the exception of the three Tea varieties, Souvenir d'un Ami (1846), and ranking thirty-seventh ; Gloire de Dijon (1853), fifty-ninth ; and Souvenir d' Elise (1855), thirty-ninth, every rose in the entire list of seventy-three has been introduced within the past twenty years. Marvellous to say, not a solitary Hybrid Perpetual variety was in existence twenty years before the day of exhibition, the oldest, and

the twenty-ninth in rank on the list, being Victor Verdier, introduced in 1859. Of the entire list of seventy-three varieties, ten were of the Tea or Noisette class; and of the remaining sixty-three Hardy Perpetuals, nearly one-half have been introduced within ten years. This is the more astonishing when we consider that time is required to introduce novelties, and to prepare them for competition. Two points are very clear: first, that the improvement has been wonderful; and, second, that the prominence of these exhibitions has awakened a remarkable general interest in rose culture.

Where so much interest is felt, and the competition is so sharp, of course we should expect that the quality of the exhibitions would be of the highest order. It is no chance work that wins a prize, or secures honorable mention. From the outset the closest attention must be paid to the character and preparation of the soil; the selection of stocks; the heavy feeding with well-ripened compost of horse, pig, and cow manure; the careful pruning in spring; the thinning out in May and June; the frequent syringing of the foliage in dry weather, and the judicious selection and staging of the blooms, to obtain harmony and contrast in the shades of color. All this care and labor are involved; but what a result! The effect is too grand for words, — unapproachable in magnificence and splendor, grace, elegance, voluptuousness and elegant loveliness, by any rival court. Undoubtedly the English rose exhibitions are at present the finest in the world. The French, though large cultivators, and producing many more novelties, are not up in the exhibitions. Possibly their sun is too bright; probably they give less care to the production of superior blooms. As a single illustration of culture: At the Crystal Palace Rose Show, June, 1877, one collection of forty-eight roses in pots is described as standing from five to seven feet in height, and as many feet through, with very healthy foliage close down to the rims, and each having from one hundred to two hundred and fifty grand and perfect blooms, worthy to be placed on the stand.

Does the remembrance of the moist, genial climate of Old England, and the knowledge of such enthusiasm, skill, and experience, cause us to feel faint-hearted and hesitate to enter the lists? Then have we no British blood in our veins; then are we not loyal to our queen; then may we doff our caps and yield the *first* prize to our betters. But this is what we do not purpose to do; not yet do we doubt that we are to have as large and as fine collections of roses as can be seen in any land.

A few words as to varieties. The ever recurring question comes back, "Which are the best?" The answer of the college professor to the question, "Who are your best men?" is a good one, "Ah, that depends upon what you want them for." Exactly so; Daniel Webster made a good lawyer and he might have done something at poetry, but doubtless he was wise in the choice of his profession. The old family horse, Dobbin, serves a good purpose for wife and children, though we should never think of putting him on the track. So with the Rose in all its diversity of form and habit; each phase has its value and some particular place which it can fill better than any other. And here it is well to bear in mind that the lists, which are made out with such care, are generally for a particular purpose, which governs the judgment exclusively. For example, the English election list does not include the valuable Gen. Jacqueminot as worthy to rank as high as seventy-third on the list. In short it is ruled out—excluded—disgraced. And yet for certain purposes there is not a more useful, a more superb rose, in its form, color, and pose, than this same cashiered general. "Ah! that depends upon what you want him for." If you ask for a wide spread, a full, expanded, exhibition bloom, with cultured dignity he informs us that that is not his style, and quietly retires. Never doubt, however, that he will make a brilliant dash to the front and come off with flying colors. The truth is, the standard of form for exhibition roses is given undue prominence and importance. There are other and better uses for the rose than to make a wide spread and a perfect cup, or circle. The taste of Boston in its culture of the Bon Silene variety has caused many a compassionate lifting of the eyebrows, but in any market on the globe the public will readily part with its loose change in exchange for the form and color which we can put into these same buds, provided we do not give them too many. For one, I am out of patience with those judges who are ever ready to condemn any rose which cannot expand itself like a full-feathered turkey. I am in love with the old Agrippina, or Cramoisi Supérieur, and am indignant that it should be crowded out of our gardens by the host of inferior bedding-plants.

My advice to every planter is, first consider what you want, and select varieties accordingly. If you have a pillar, or porch to cover, then plant the Baltimore Belle, or Queen, or the new Climbing Jules Margottin. If you want a profusion of buds throughout the summer select the Teas and Ever-blooming class.

The Mosses you know, and knowing, love. Do you say they are not on the exhibition list? Well, for all that they are the most exquisitely beautiful things in the wide creation of matter. If the exhibitions can afford to be without them, you surely cannot. Again, your fancy may require the rare, bright, golden yellow of the Persian rose, and if so, get it, in spite of the opinion of judges.

The largest and best class we name last, because here you must select and experiment without limit. For pot-culture and winter forcing you will find Gen. Jacqueminot by far the most satisfactory and most profitable for marketing. In profusion of bloom, in shape of bud, in color, in all good qualities for this purpose, it is in my opinion decidedly superior to any other.

The globular or expanded form; the rose color and reflex petals of so large a portion of this class, are, in general, undesirable for winter use. We have varieties in form and color like Capt. Christy and Madame Baronne de Rothschild, which will secure sufficient contrast and variety, but the number of kinds of hardy roses adapted to the winter market is small and is yet to be tested. Of course we all expect to compete at the exhibitions. Well, let us examine and compare the English list with our own prize list. We shall be surprised and shocked to find Hippolyte Jamain so low down as fifty-two, and our favorite Baron de Bonstettin almost losing caste at sixty-five. Many kinds will doubtless do better with us than across the water. This can be determined only by trial. But in one point we may be confident our experience will accord with that of our English brethren, viz., our best blooms, in nine cases out of ten, will come from buds inserted, in the August previous, into the brier or Manetti stock. No doubt the stock will produce a permanent tree, good enough for all ordinary purposes, for years to come. But it is equally certain that the *maiden* growth of the bud can be managed so as to produce a vigor of bloom never again to be equalled.

Do we, then, recommend the practice of grafting or budding our best varieties? Again we repeat, that depends upon what we want them for. For exhibition purposes we say, unhesitatingly, Yes. There can be no question that the Manetti and the brier stock for Hybrid Perpetuals, and the Banksia and Laure Davoust for Teas and Noisettes, will impart a vigor to the scions which they could never attain on their own roots. These stocks are more vigorous in their growth than any of the high blooded varieties, and the proof is

indisputable that they impart their own luxuriance to the top. The experience is so uniform on this point that this one example would seem to prove the influence of the *stock* upon the *scion*, to a most important degree. And yet, in practice, this influence is entirely ignored in the engrafting of nearly all our fruit trees. Seeds for apple stocks are obtained at the cider mills; generally from a low grade of apples. It is the observation of all nurserymen that the stocks for the pear are not generally as luxuriant as the scions. Now who shall say that much of the diversity in the vigor of trees and in the quality of the fruit of the same variety, on different stocks, is not owing to the difference in the stocks themselves. It is generally admitted that the Duchesse d'Angouleme pear is liable to be ill-shapen and inferior on the pear stock, but is almost uniformly good upon the quince. The Seckel is much larger when double worked upon a vigorous stock. The pear worked upon the apple stock may produce fair fruit, but in all probability the quality will be poor. These and other similar facts certainly indicate the importance of a much more careful selection of vigorous and healthful stocks, best suited to impart the highest degree of development to our fruits, corresponding with what has been done, so evidently in the case of the rose.

To return from this digression—Are we then to conclude that all roses are to be budded on stronger stocks? By no means. On the contrary, it is better for the great bulk of cultivators to select roses on their own roots. It is only for those who aim at extraordinary size and excellence, that the stock is recommended at all. The large function of the rose is for home enjoyment, and for this purpose the more vigorous kinds on their own roots give much less trouble and are entirely satisfactory. Indeed, we may expect high excellence at the exhibitions if we give the same generous culture, and shall be only distanced by the superlative vigor of the *maiden* growth upon the brier or Manetti. Say what we may about the trifling amount of labor required to remove the suckers from budded roses, it is an evil which we advise the general public to avoid. On the other hand we think that these stocks have a vigor of root which is very desirable for pot culture and for forcing, where the variations of moisture and of temperature are unavoidably fluctuating.

Here we may state the general law, applicable as truly in the vegetable as in the animal kingdom, that a vigorous constitution

is the best safeguard against disease. But, as we should expect, the rose has some enemies which require specific remedies. In the greenhouse, tobacco smoke is a sure preventive against the green fly, or aphis, and sulphur upon the water pipes is equally sovereign against the attacks of mildew. In the dwelling house, where tobacco cannot be used, successive quick plunges of the tops of plants in a tub of water as hot as the hand will bear, will clear them of nearly all insects. Within a few years a much more serious pest than has been realized has appeared in most of our greenhouses. In its mature stage it is a wingless bug, of a greyish color, which creeps up the stems of roses and feeds upon the leaves. The destruction of foliage is of small account compared with the insidious injury to the roots caused by the larvæ, — small bluish grey maggots when first hatched, but changing to white and attaining a size of a third to half an inch in length. This maggot, feeding upon the roots, is undoubtedly the cause of failure of many a rose border, although he has worked so secretly as to escape conviction, or even suspicion. The only remedy I have found has been hand-picking of the mature insects. Forewarned, the evil is not serious. Dr. G. H. Horn first described this species in 1876, under the name of *Aramigus Fulleri*, and a full account, by Peter Henderson, may be found in "The Gardener's Monthly" of the current month. For out-door culture I have found a solution of whale-oil soap, of about the strength of ordinary washing suds (of course having a decided odor, the stronger the better), to be a sovereign remedy against aphis, thrip, slug, rose-bug, and other insects which would utterly destroy the bushes, if left unmolested. Syringe once or twice a week, late in the afternoon, in early summer, as occasion requires, and you will have foliage worthy to enfold the regal splendor of the bloom. White hellebore is said to destroy most of the insects named. It is certainly a more agreeable remedy to apply, but of its efficacy I cannot speak. I would suggest the cautious trial of Paris green as a cheap and perhaps effectual remedy.

I will close with this caution in regard to the large class known as hardy Hybrid Perpetuals. The class belongs almost entirely to this generation. La Reine, one of the earliest, was introduced in 1843. The varieties are the result of crossing the Damask, the Provence, the China, and other June roses, with Bourbons, Noisettes, and other everblooming classes. These hybrids retain the indi-

vidual merits of their parents, and often show the enrichment of blood in the crossing of classes. The luxuriant foliage of the Bourbons has been largely infused, and especially so among the French seedlings of late years. It will therefore be wise, in making up our lists for permanent planting, to select varieties which are reputed to be hardy and vigorous in growth. This should be an essential condition, without which form, color, and fragrance should not pass. We have enough varieties from which to give the four conditions of excellence in good degree. Hence we cannot accept the rare brilliancy of color of the misnamed Giant of Battles, unless he can give better evidence of strength to resist the rough winds of our climate. For general cultivation we should require vigor of constitution as the foundation for the superlative graces of color, form, and fragrance of this regal flower. After all, though his name is dropped from the English list, is there a rose that, in all points—in vigor, brilliancy of color, in fragrance, and in the grace of the opening buds — will outrank our old favorite, Gen. Jacqueminot? I trow not.

Discussion.

Marshall P. Wilder expressed his sense of the excellence of Mr. Strong's paper, and only regretted that it was so short. One of its strong points is the adaptation of varieties to the purposes for which they are wanted. Although Gen. Jacqueminot is excluded from the prize list, it is, in its way, most desirable. The speaker said that he disliked roses with reflexed petals, and always felt a desire to pull them off.

Mr. Strong said that he felt that we do not bring the rose so prominently before the public as we ought. He was convinced that we can do as well with it in this country as in England. He regretted that our florists kept back a great deal that they might tell at these discussions, until they had made something out of it. Mr. Strong exhibited a bud of Cornelia Cook, a variety originated at Baltimore, which, though very beautiful, is not free flowering (this however depending somewhat on position), and does not carry to market well. It would be impossible to pack it so as to send it to New York.

Mr. Wilder asked if there was any rose so gorgeous as Maréchal Niel, and which travelled so well.

Mr. Strong replied that there was not, but that it was a rampant grower, and required to have its roots confined, and to acquire age before it would flower freely.

E. W. Wood thought we were not so favorably situated for rose growing as the English. Growers fear that our hot, scorching suns on their exhibition roses, for ten days, will cause them to lose their brilliancy. In forcing roses we have the advantage over the English, by giving ventilation and watering freely. The object of those who grow roses for market is to make the most money, and the number of varieties referred to in the essay is selected from as many hundreds. Mr. Wood had been most successful with Maréchal Niel, and found it most profitable. It is a profuse bloomer with him, and brings the highest price. The Climbing Devoniensis is not so continuous a bloomer as Maréchal Niel, but comes in showers. Though Maréchal Niel does so to some extent, there is not a day when there are not some flowers. No other rose blooms without cutting back; he had had thirty-seven blooms on one small limb about four feet in length. The branches are allowed to run and send out offshoots, and they form buds at every joint.

Mr. Wilder read from "Tilton's Journal of Horticulture" an account of a Cloth of Gold rose at Augusta, Georgia, with a stem a foot thick, and covering a space one hundred and twenty feet wide and seventy feet high, on the walls of a factory.

Mr. Strong did not agree with Mr. Wood that our hot sun will place us second to the English in rose culture. He thought it would probably place us first, for sometimes we want all the sun we can get, and at others we can shade with cotton cloth at little expense. We cannot expect so long-continued flowering as the English, but for exhibition purposes we can equal them, if we put forth all our energies. In regard to the profit of forced roses, Mr. Strong said that at certain seasons Gen. Jacqueminots would sell for much more than Maréchal Niels.

Mr. Wood said that in speaking of the most profitable varieties he had only Tea roses in mind. Jacqueminots could at this time be bought for fifty cents a dozen, while Niels will bring more. You can cut Niels every day, while the season of Jacqueminots is short. Hybrid Perpetuals will, at certain seasons, bring very high prices — as high as one dollar each. It is true that roses can be shaded, but it is not so much the direct rays of the sun that injure them as the hot, dry atmosphere. Every one knows the difference

in the feeling of the atmosphere in a morning after a rain, from that of one which has been dried by ten days of heat.

Mr. Wilder said that Maréchal Niel was planted out, while Gen. Jacqueminot is grown in pots, so that the comparison between them is not fair. He had cultivated Maréchal Niel in pots, and endeavored to bring them into flower by pinching, but without success.

Mr. Strong did not see why it should not succeed.

Mr. Wilder asked whether plants filling a house did not require a large border.

Mr. Strong replied that they required some border, but that the growth must be checked. They require age before flowering freely.

James Barratt said that in a recent visit to Mr. Strong's greenhouses he was astonished to see so many fine Maréchal Niels. There were fifty of the finest plants he had ever seen. Hovey & Co. had two plants, eleven years old, which failed to flower, and accordingly the soil was dug away from around the roots, and they were left bare for six months, when the space was filled with crocks. The effect was that they ripened their wood and flowered so profusely, that he never saw such a sight. There was a flower bud at every joint. This variety has been in great demand this winter; good specimens have brought from two dollars and a half to three dollars a dozen, and small ones one dollar a dozen. Today they are a drug, and good ones can be bought for a dollar and a half a dozen.

M. H. Merriam said that he had learned to distrust his conclusions a good deal. He had been obliged to carry on his cultivation of roses at arm's length, employing others to do the work, and paying the bills. He had found a great difficulty in obtaining accurate observations from those whom he employed. The essayist today had taken up the subject in an independent line of thought, and the speaker hoped that the paper read would be only prefatory to a further one, for the subject is so broad in relation to soil, climate, etc., that it cannot be exhausted in a single essay. He had come to the conclusion that we do not modify the climate in our plant houses so much as we may suppose. Unless they are almost hermetically sealed we are not getting so near an English climate as we think. He had found most success in rose culture in moist climates. At the city of Parimaribo, in Surinam, South America, where the average annual rainfall, according to government charts,

is twenty-eight *feet*, he had seen roses growing with the utmost luxuriance, and flowering in a profusion surpassing anything he had ever witnessed in Cuba or Florida.

The Chairman said that though not a grower of roses he was a dear lover of all flowers, and suggested that Mr. Strong continue the paper next Saturday.

It was moved by Mr. Wilder and seconded by Mr. Merriam, that Mr. Strong be requested to prepare a paper in continuation of the subject.

Mr. Strong said that he should not be able to prepare another paper, but he hoped that the present one would bring out discussion. Many of our members are interested in rose culture, and as brother cultivators we should profit by expressing our views and obtaining those of others—on stocks, for instance. He thought that members were at fault in not coming forward to sustain the discussions. Complaints had been made that the Committee had not kept up the interest of the discussions, but in his view the fault was rather with the finders.

Leander Wetherell had heard it remarked that cultivators were frequently indisposed to impart what they know, but he thought that such ones took a narrow view of the subject, and that the Committee on Discussion had reason for the complaint that their efforts had not been seconded by the members as they should have been. If the fault finders were here they would learn something, if they could not communicate anything. He had striven for improvement, and was one of the first to advocate these meetings, and regretted that we had not come nearer to our ideals.

Mr. Wilder said that he always brought his memorandum book to these meetings, and always found something new to note. The analysis of the exhibition of roses, as presented by Mr. Strong, is a new thing. The speaker thought we ought to be thankful for the degree of success attained in the discussions, which is due to Mr. Strong, the Chairman of the Committee on Discussion, more than to any one else.

The Chairman, alluding to the fears of cultivators that others would become possessed of their secrets, related an anecdote of the late Leonard Stone, who found a man very busy performing some operation secretly under the protection of a wall. As soon as he found his secret discovered he said to Mr. Stone, "You are welcome to all you have got, but don't tell any body else."

It was voted to continue the discussion of the subject on the next Saturday, in order to keep it up until after the Rose Show on Wednesday, the 19th.

MEETING FOR DISCUSSION.

SATURDAY, March 15, 1879.

A meeting for Discussion was holden at 11 o'clock, W. C. Strong, Chairman of the Committee on Discussion, presiding. The subject was Rose Culture, continued from the previous Saturday.

The Chairman stated that, the day before, he saw the Cornelia Cook rose flowering so freely at Mr. Wood's greenhouse in Wellesley, that he had changed his opinion as to its productiveness. Mr. Fewkes also finds it productive if properly treated. The buds are a long time in developing, and it is difficult to pack so as to travel safely, yet he thought it deserving of notice as an American seedling. If it had been sent out in Europe it would have ranked with the best.

James Comley said that he cultivated a rose very much like the Cornelia Cook twenty years ago,—before the time when this is said to have originated, and threw it aside because the flowers would not develop. He saw the same rose at John Henderson's, in New York City, and they said they could not develop it until February or March. He thought that, like Niphetos, it required a great deal of heat—say 70° or 80°. It will rank with the Noisettes, which are not perpetual, but it cannot be recommended for general cultivation, being too large for the majority of customers, and having but little fragrance. Souvenir de Malmaison is much more reliable and more valuable for market. Very few of the new introductions can be recommended for market. Among the best for this purpose are Niphetos, Catherine Mermet, Souvenir de Malmaison, and Isabella Sprunt. The last is better than Cornelia Cook, and will produce ten times as many flowers. We want as many distinct colors as possible. Mr. Comley thought the Maréchal Niel rather ordinary, and not of desirable habit, though it is in demand, like Gen. Jacqueminot. There are very few roses forced, considering how many persons have undertaken it. Some have seven or eight hundred pots of Gen. Jacqueminot, and not as many blooms. The

fine specimens exhibited by Mr. Tailby today will bring six dollars a dozen, while Gen. Jacqueminots can be bought for two dollars and a half. He had seen roses turned out in the sun in September to " ripen off," but if the pots are exposed to the sun in that way when they are full of young roots they will be destroyed. If watering is neglected once, while the plants are making their growth, the flowers will be spoiled. If roses are planted in the open ground they start into growth so late that it is impossible to get a ripened growth in season, but when put into the house the wood is very soft. Many growers expect to get roses at Christmas, but are disappointed. Mr. Comley said that he had roses in the same pots they were exhibited in last year, which bore fifty blooms each this season. They are now headed down. He plunges the pots in summer, first putting soot in the bottom to keep out worms. There is no difficulty in getting roses in January if you begin early enough, but it takes two years. In England they think it a great deal to get them in March. Mr. Comley thought we could grow forced roses here better than in England. The plants exhibited at the English rose shows, with such profusion of bloom, are from twelve to fourteen years old. Celine Forestier had between two and three hundred flowers, and was grown in a twenty-four inch pot. The new kinds are only in small plants. There is a great difference of opinion as to the best varieties. Mr. Comley thought that out of the great variety of Hardy Perpetual roses on the catalogues there were not more than twelve desirable for forcing, and these are mostly new varieties. This is for amateur culture; for market the list would be much shorter. The Hybrid Perpetuals have been crossed so much with the Bourbons that they flower very freely, but they are not so eligible for out-door culture. For forcing he would not have them on their own roots. He prefers the Prince's stock, grafted on the root, in August. This is much better than budding a foot from the ground. In England they are budded at the ground, and a furrow is turned against them. They are headed down to two eyes, and the bud gives four or five shoots the second year. The best forced roses he had ever grown were on plants imported the November previous. To ensure the highest success there should be two sets of plants, to be forced in alternate years, one set being kept out of doors. The soil in the pots should not be allowed to freeze, for when a rose sheds its leaves it makes new roots, and if the pot freezes these are all killed, but if put into the house they go right on.

The Chairman said that he visited the greenhouses of Joseph Tailby, at Wellesley, the day before, and was surprised and delighted at the health, vigor, and beauty of bloom of his roses. He called on Mr. Tailby for information as to his method of culture.

Mr. Tailby said that the specimens of his roses on exhibition would speak for themselves. They were grown in from four and a half to six inch pots, and were from two to five years old. He approves of confining the roots in a small space. Roses are like grapes; you cannot get a good crop of either, without well ripened wood. It takes a very large plant to fill a twelve inch pot, and an expert gardener to water it and care for it otherwise. A novice can get along better with small pots. The speaker keeps his plants in the pots through the summer—some of them plunged and some in the house. If planted out-doors they do not begin to grow until October. They must not be dried up, but he would rather have them a little dry than over-watered. The petals will show over-watering in thirty-six hours, changing from scarlet to purple.

The Chairman inquired; Why not pot on, and get a large plant?

Mr. Tailby, in reply, asked: What is the use of a large plant with unripe wood? He said he could show a Marquise de Castellane rose in a six and a half inch pot, with twelve well developed buds.

The Chairman asked: Why not have larger pots and reduce the amount of care and attention required?

Mr. Tailby replied that forty little plants would not occupy any more space than five or six large ones, and could be handled much more easily, and a novice could judge better when water is needed. They take up the liquid manure more readily.

The Chairman remarked that the critical time is in autumn.

Mr. Tailby added that the soil should be in such condition that the water will go right through it. He uses solutions of sulphate of ammonia and guano for watering.

The Chairman described a bed of *Eucharis Amazonica* which he saw at Mr. Tailby's. It was on a shelf over a flue, with only three inches of soil, and here this rank-growing, evergreen, tropical plant had flourished for three years. It needs a great deal of water—you can hardly give it too much. Mr. Tailby gives it liquid manure made from cowdung, in preference to guano or ammonia. There were four pipes under the shelf, affording a bottom heat of 80°.

The Chairman also gave an account of Mr. Wood's rose houses at Wellesley, which he visited the day before. He had a bed of Gen. Jacqueminot, in a house about a hundred feet long by ten feet wide, of the cheapest possible construction. The pipes are at the eaves, and the beds are about three feet in width. The house was started in January, and would be in full bloom at Easter. It was a remarkably fine house of roses; indeed there was too much bloom. The speaker thought it safe to say that there would be four thousand blooms before Easter. Mr. Wood has three or four other houses coming on. The beds are on the ground, and the glass is removed in summer so that the plants receive the effect of the fall frosts. The Chairman asked the opinion of experts as to the propriety of planting out roses.

Mr. Tailby thought Hybrid Perpetuals could be forced at this time, but not at Christmas. Gen. Jacqueminot is the best, but everybody has it, and the florist should aim to grow what everybody else has not got. He got from six to nine dollars a dozen for his roses, when others, who had only the more common kinds, could get but from two to four dollars. If planted in a bed the soil should be from eight to ten inches deep, and well drained. He thought it would pay well to plant them and let them come in about a month before they bloom out of doors. The roots of Hybrid Perpetuals should be where you can control them. Deep soil gives vigorous growth, but you must have ripe wood. The principal difficulty is in ripening the wood. He commenced cutting Maréchal Niels in January. The plant of Paul Ricaut, with three hundred blooms, spoken of as shown by Mr. Paul, in a fourteen or fifteen-inch pot, has been exhibited for thirteen years. Mr. Tailby showed from the specimens exhibited by him that the wood of his roses is ripe now. They are worked on Manetti stocks.

The Chairman stated that when at Mr. Tailby's he observed that the wood of all his roses was very short jointed.

Mr. Comley said that last autumn he visited John Henderson's establishment in New York, where he saw a span-roofed house twenty feet high in the centre, filled with roses struck the previous spring. The soil was very rich, and the roses had grown up to the top of the house. If the bottom had been solid, with three or four inches of drainage and twelve inches of soil, the growth of the plants could have been controlled. The speaker would have small houses, about fifty feet long, each devoted to a particular variety, and

forced in succession. Hybrid Perpetuals will mature their wood as well at 45° as at 60° or 75°. The small growers bring in the best roses. The closer Tea roses are pruned after cutting the flowers, the better; he prunes as he cuts the roses. His plants of Madame Falcot had every bit cut off for propagation, and these plants did best. A Tea rose should never rest; his had suffered from getting too dry. Their natural habit is to sucker from the bottom; if allowed to sucker you get more roses, while if trained up you get better ones.

The Chairman asked if it is not a critical operation to prune in the autumn.

Mr. Comley replied that it is, especially when the pruner goes in with a knife and cuts off shoots as large as a man's finger.

M. H. Merriam thought that his house bore out Mr. Comley's view. His Noisettes especially, have not done as well since as before being subjected to a severe pruning. You cannot prune the old wood of this class of roses.

The Chairman said he had two or three beds of roses which were in vigorous growth last summer, and the wood ripened fairly. They received a severe pruning in October, which was very injurious, destroying the balance between the root and top. He called on C. M. Atkinson for an account of the Tailby stock.

Mr. Atkinson said that when he was gardener on the estate now owned by Samuel R. Payson, they had a rose called Madame Sontag, which covered a large space. Mr. Tailby was there one day when Mr. Watson, who succeeded the speaker as gardener, was pruning this rose, and carried home a large quantity of the cuttings, and this was the origin of the Tailby stock.

The Chairman said it was a very vigorous grower, and for some purposes very valuable.

Mr. Comley thought it a poor grower.

The Chairman said that budding it with Niphetos, or any other rose with small foliage, would be almost sure to kill it, while Souvenir de Malmaison does admirably on it.

Mr. Comley had seen very good roses of some varieties on it, but others, such as Climbing Devoniensis, had made no growth. For Maréchal Niel he preferred Laure Davoust as a stock; he had known Niels grafted on this stock which had gone over from one side of the house to the other. He knew many instances where this stock had not done well. He thought Laure Davoust and Banksia the best

stocks; the former is very vigorous and makes a mass of fibrous roots. He bought two hundred roses last May which were budded on an American stock, collected in South Carolina; the best of them made only six inches of growth, but, though in only six inch pots, they bore from twelve to twenty-four flowers on each plant, in February.

It was voted, as the Rose and Azalea Show would occur on the next Wednesday, and might afford some suggestions, to continue the subject on the next Saturday.

MEETING FOR DISCUSSION.

Saturday, March 22, 1879.

A meeting for discussion was holden today, at 11 o'clock, W. C. Strong, Chairman of the Committee on Discussion, presiding.

The Chairman, after calling the meeting to order, alluded to the absence of Ex-President Marshall P. Wilder, who had been a constant attendant at these meetings, but met with a severe accident the previous afternoon, and whose absence the speaker said gave all a sense of personal loss.

It was intended to continue the discussion on the rose, but no rose growers were present, and an inquiry by Aaron D. Capen as to the cause of fungous growths on some apples on the table, led to a renewal of the talk upon apples. Mr. Capen expressed the opinion that fungi on apples and pears were caused by dense foliage. When he had fungi on his apples he had been asked if they grew in the vicinity of evergreens, but they did not. He thought that the fungi might be caused by the moisture from the Neponset river, which bordered his grounds.

Benjamin P. Ware was called upon by the Chair, as an experienced orchardist, to give his opinion.

Mr. Ware had had the same growths upon his apples, more particularly where the trees were too thick, or in shaded localities where the air had not free circulation. He thought that one species of fungus continued to grow after the fruit was harvested.

Leander Wetherell referred to the opinion expressed by Dr.

George B. Loring, that orcharding is not profitable in New England, and asked Mr. Ware's view.

Mr. Ware thought that apples were as profitable as any crop, and that a portion of every farm should be devoted to them. His land is valued for taxation at three hundred dollars per acre, yet he did not know but apples would pay as good interest as any crop. The great crop last year has often been spoken of as a nuisance, but the cost of harvesting was not great. They kept finely, and apples that sold for a dollar a barrel in the autumn would now bring a dollar and a half. This increase, however, is not all profit, for, though the loss by rotting is not more than one per cent, the shrinkage, he thought, was about ten per cent. He believed there was a profit in raising apples, even at the prices of the last crop. Many people harvested their apples very carelessly, because they were so abundant, but he picked with as much care as ever. The keeping depends greatly upon the harvesting, and also on the place and position in which they are kept. He picks into small baskets, which are lowered carefully into the barrels before they are emptied. He directs his men to throw the apples as far as they would eggs, and no farther. The small ones are dropped on the ground as they are gathered. The barrels are left out over night to cool, and the next morning are emptied into bins in the cellar, holding from fifty to one hundred bushels each. He takes great pains to cool the cellar, and not to let it get too moist or too dry; either is bad. In this way he has kept the Kilham Hill, an autumn apple, in perfect condition until April. He picks over and sorts the apples, as the market calls for them, and generally delivers them the next day; they are never kept a week after sorting. Bins save room in storing, and the apples must be emptied out of the barrels at some time, to sort them. They do not suffer from being in a mass. The bins are about two and a half feet deep; he has one bin that is two stories high, and after filling the lower part boards are placed over it, and the upper part may be filled with a different kind. The air must not be so dry that the fruit will wilt. The Roxbury Russets being more inclined to wilt than most varieties, he keeps them in barrels, covered up. Experience enables him to judge by his feelings whether the air is in proper condition as regards moisture; if it is too moist he opens the cellar on the first dry day, and if it is too dry he takes the first opportunity to let in moist air. He keeps the temperature as low as possible without freezing. Many farmers

put their apples in barrels and pile up out of doors to "sweat." This should not be allowed, for it is the beginning of decay; he has not had an apple sweat for twenty years.

Mr. Ware cultivates and manures for four or five years in succession, and then sows to grass for two or three years. He ploughs six or seven inches in depth and avoids cutting large roots, but does not mind cutting small ones, and manures as he would a corn or potato field. Young trees he would cultivate all the time. He forms the tops of his trees while young, and endeavors to anticipate and prevent crowding, and the necessity of cutting off large limbs. Nature provides for pruning a neglected tree; the crowded limbs die for want of sap, and such ones should be cut out as soon as they begin to fail.

The chair was here taken by Rev. A. B. Muzzey, of the Committee on Discussion.

Mr. Ware stated that people sweat fruit for the purpose of ripening it off. Sweating is a part of the ripening process. It has been said that a pear is in the best condition for eating the day before it begins to decay.

E. P. Richardson asked Mr. Ware's views as to changing the bearing year of apples.

Mr. Ware had no doubt that it could be done by picking off the blossoms, but it must be followed up, for there is a tendency to go back. If a young tree bears for the first time on the odd year the blossoms should not be picked off. When the habit of bearing in the odd year is established, the tree cannot afford to mature that crop and form fruit buds for the next year.

Mr. Richardson asked whether trees well manured would not bear every year.

Mr. Ware replied that he had moderate crops the odd year when the trees were well manured and had sufficient food to perfect the fruit and form fruit buds for the next year. His full crop is six hundred barrels, and in the odd year about half that quantity, which is worth more than the full crop, and which he thinks is due to cultivating the orchard highly.

Leander Wetherell remarked that Captain Pierce, whose success as an orchardist had been mentioned in previous meetings, got a crop of the Williams apple every year. He raised Hubbard squashes between his trees, where it was not too shady, and mulched under the trees, thus fertilizing the soil and saving the apples from bruising.

Mr. Ware said that he had practised mulching to some extent. To have the Williams apple in perfection it must be allowed to hang on the tree until it drops, and the idea of mulching arose from the necessity of saving the apples from bruising. He uses from seven to eight cords of compost per acre in his orchard, and grows squashes where there is room.

The Chairman inquired what varieties are best ripened on the tree.

Mr. Ware mentioned the Drap d'Or as one. It bears very young, and has a tendency to bear every year. It is delicious for the table or sauce. It would not be good policy to let apples drop generally, but with such varieties as the Williams it is necessary.

In answer to an inquiry as to the best varieties, Mr. Ware said that, all things considered, the Baldwin is the most profitable. He grows the Roxbury Russet successfully, and finds it profitable. He had not grown the Hunt Russet largely, but has a high opinion of it. The English Golden Russet is in eating in December, and is very delicious. The tree has rather fine, small twigs. The Rhode Island Greening is very rich and very desirable, but the fruit is now small and inferior. Mr. Ware has only two trees left. It must be used as soon as ripe, for it quickly grows mealy, and cracks. The Gravenstein bears abundantly in certain locations, while there are others where it will not bear at all. Mr. Ware knew one tree forty years old which has never borne two barrels of fruit. He could not account for its varying productiveness in different localities. At his instance this variety was stricken from the prize list of the Essex County Agricultural Society, of which he is president, and the next year the tables were filled with magnificent specimens. The Pickman Pippin, which originated more than a hundred years ago, on the farm of Col. Benjamin Pickman, in Salem, and was named for him, has been familiar to Mr. Ware from his youth, as a very valuable apple, bearing abundantly in the odd year, and bringing an extra price in Salem market from those acquainted with it, but it has not succeeded far from the place of its origin and cannot be recommended for general cultivation.

J. W. Manning said that in the nursery the English Golden Russet is of strong and vigorous growth, but that after bearing the wood is slenderer.

Moses Darling, Jr., asked whether the bearing of apple trees could be hastened.

Mr. Ware replied that it could, but that it was an injury to a young tree to bring it into bearing too soon. If he wanted an orchard to endure, he would encourage the growth of wood rather than of fruit, while young. He thought the average time from the planting of an orchard to its full bearing, twelve to fifteen years. If a tree does not bear when it should it can be made to bear by checking the growth of wood by root-pruning. An orchard highly cultivated is short-lived, beginning to decline after fifty-five or sixty years, while one with ordinary cultivation will last a hundred years. The highly cultivated orchard does more work in the same time. The Pickman orchard, which was highly cultivated from the beginning, is now exhausted and removed, having endured about seventy years from the time it was set. Mr. Ware has an orchard, set out twenty-five years ago, which is now in its prime, and another and older one on the decline. He is trying to bring new heads on his trees by encouraging the growth of sprouts. He would not plant a new orchard on the site of an old one.

The Chairman remarked that fast living is not good for the constitutions of trees any more than for those of men.

Mr. Ware, in answer to an inquiry, said that both apples and pears would absorb mouldy and other unpleasant odors, and that therefore all barrels should be thoroughly cleansed of flour or other substances that would mould and impart a bad flavor. Whenever he notices any unpleasant smell in his fruit cellar, he lets in the cold northwest wind to purify it.

Mr. Manning said, in reply to an inquiry as to the success of dwarf apple trees, that he had seen at Mr. Howe's garden in Marlborough, both dwarf cherries and apples bearing abundantly. Almost all the varieties of apples did well; Porters six feet high, and the same in breadth, bore a bushel each. He had seen the same at Ellwanger & Barry's grounds at Rochester, N. Y., T. C. Thurlow's at Newbury, Mass., and also in his own grounds. Dwarf apple trees can be planted from six to eight feet apart. He asked about the peculiar affection of the limbs of Gravenstein trees which he had noticed at Messrs. Clapp's orchard, in Dorchester—a spot apparently dying and decaying on the limb, while the wood on each side continues to grow, so that the dead spot appears as if sunken, and the limb being weakened so as to break off. The Williams and Gravenstein bring higher prices in Boston market than any other apples of their respective seasons. A friend of his at Chelmsford

kept Gravensteins in his cellar much beyond the usual season, and they then brought two dollars and a half per barrel. There is an increasing demand for Hubbardston Nonsuches. He knew apples kept in bins many years ago, and thought it an excellent method. The bins should not be more than two or three feet deep; if necessary to make them deeper there should be a floor to relieve those below of the pressure.

Mr. Wetherell asked Mr. Ware's opinion as to training apple trees low, as he had seen done in Illinois, to prevent injury by the severe prairie winds.

Mr. Ware said that low trees are safer from the winds, but that he wanted to cultivate under his and that he pruned so as to have just room enough for his lowest horses, taking care that the hames do not stick up.

The Chairman asked whether the trees do not need the influence of the sun upon the soil.

Mr. Ware said he should be willing to take the risk of injury by shading. The apple in a state of nature is shrubby and grows low, so as to shade the soil.

Mr. Manning said that very little vegetation grew under these low trees, and in the West, where this plan was adopted, they needed very little cultivation. He would plant low trees, and keep them low, and plough as shallow as possible, for ploughs and cultivators do a great deal of damage. He would prefer to fork the soil over lightly; it does not take long to go over an acre. If mulching is continued, the roots get very near the surface in a few years. Apples cannot be grown without culture; all fruit or ornamental trees should have good culture.

M. H. Merriam said that about five years ago he planted fifty dwarf apple trees on Paradise or Doucin stocks, but he was unable to make out the distinction between these stocks. They are now from two to three inches through, and a very few of them bore last year. They possess the advantage of bearing early, but he desired information as to their probable product per acre, and their habit in regard to bearing the odd year. He thought as much fruit might be got from an acre of dwarfs as of standards. Every variety has characteristics of vigor, form, color, etc., which might almost be called idiosyncrasies. He had grafted over old Baldwin trees, which bore inferior fruit, with other varieties, and they have borne an abundance of fruit of superior quality. It had occurred to him

that in recuperating old trees it might be better to put in vigorous grafts, of the same variety even, than to rely on sprouts from the limbs, and he asked the opinion of those present as to this course.

Mr. Ware thought it would be attended with loss rather than gain.

Mr. Talbot thought there would be no advantage in grafting unless it was desired to change the variety.

Benjamin G. Smith had experimented in grafting old and young apple trees, and got the best fruit on the older trees; the grafts on the young trees ran to wood.

Mr. Capen said that fifty-six years ago he boarded on the farm where the Williams apple originated. Major Williams, who then owned it, sent to Philadelphia and got a hundred and fifty apple trees, and planted out. The varieties were not satisfactory, and they were grafted over, the whole top being cut off after they had leaved out. The experiment was very successful.

Mr. Merriam alluded to the fungus on apples, mentioned at the commencement of the discussion, and said that it had been a question whether it was found only in orchards or on scattered trees. In Florida the oranges are affected with a fungus, causing a rust. He had never seen it elsewhere than in Florida. Some varieties of the orange come true from seed, and he had seen decayed specimens of these varieties — notably the Indian River orange — purchased for two cents apiece, for the sake of their seeds. He spoke of a forest of two hundred and fifty thousand wild orange trees, the fruit of which is very acrid and bitter. He thought the sweet orange deteriorated when grafted on the wild stock.

Mr. Ware read a letter from J. A. Bostrom, of New Britain, Volusia County, Florida, in reply to some inquiries which he made as to the correctness of a statement, in a newspaper paragraph, quoted at the meeting on the 18th of January, that the sweet orange soon deteriorated when grafted on the wild sour orange. Mr. Bostrom said that the idea that the influence of the sour orange root on the engrafted sweet top is of such an extent as to turn the fruit sour, is entirely without foundation, and that he knew trees which had been grafted for thirty years and had not begun to turn sour. If a wild tree is budded with the sweet and then neglected, the sweet top will first be crowded out of the way and made a side branch; then overshadowed, and finally crowded out entirely. This may have led some ignorant person to believe that his sweet

graft had turned sour. The shaddock grows faster than the sour orange, and the sour orange grows faster than the sweet. If two young trees, say three years old, one sour and the other sweet, the former four and the latter three feet high, are budded one from the other, and grow for two years, the conditions will be reversed; the sour top on the sweet root will be the largest. The idea which many orange growers put forth that the root of the vigorous wild stock will push the slower growing sweet variety, is entirely incorrect. Of two trees, one on a poor, dry sand, and one on a good loam, the juice of the fruit from the former will probably be richer, but the rind will be black, brown, or rusty, in spots or all over; the other will be bright and high colored. If buds are exchanged between these trees, that from the tree which produced the rusty ones will now produce bright ones, and *vice versa*. A seedling orange cannot be told from the parent in one case out of a hundred or even a thousand.

Mr. Talbot said that the statements of this letter were only opinions, excepting that in regard to the orange trees grafted for thirty years, which Mr. Bostrom knew, and he did not say whether or not these were on wild stocks.

Mr. Ware said that the trees were mentioned in such a way as to imply that they were grafted on wild stocks. The writer of the letter is in the nursery business, and sells a good many seedlings, and says the trees grafted on them do not deteriorate.

The Chairman said that the next meeting would probably be the last, and it was hoped that the report of the Committee on Apple Culture would be ready at that time. In his opinion apple culture was by no means to be abandoned in New England.

MEETING FOR DISCUSSION,

SATURDAY, March 29, 1879.

A meeting for discussion was holden at 11 o'clock, Rev. A. B. Muzzey, of the Committee on Discussion, in the chair. The business in order was the report of the Committee appointed on the 22d of February to inquire into the general subject of apple culture, and the export trade, which was read by E. W. Wood, Chairman.

Report of the Committee on Apple Culture and Exportation.

The apple, for orchard culture, must stand as the leading fruit of New England. The demand for this fruit for domestic purposes, together with its large and increasing value as an article of commerce, makes the importance of its cultivation second only to that of the grass and grain crops.

If, owing to peculiarity of soil and climate, New England and the northern and western portions of the Middle States produce this fruit of the best quality known—finer grained, firmer in flesh, and of higher flavor than any other portion of our country — and have the means of cheap and rapid transportation to home markets and to ports of shipment for foreign and coast trade, it would seem that these advantages should make the cultivation of the apple upon low priced farm lands a profitable business.

The apple may be grown with less care than any of our other fruits ; the tree is perfectly hardy, and the roots forage over a wide space. The crop is biennial, the trees taking each alternate year to recuperate from the waste of the previous year's crop, and consequently not requiring so high cultivation as those trees whose roots are confined to a smaller space and which as a general rule produce an annual crop. Good crops of first quality apples cannot, however, be produced, except under peculiarly favorable circumstances, if a grass crop is grown annually among and under the trees, the roots of the grass being voracious feeders and intercepting and appropriating most of whatever is applied as a fertilizer in the way of top-dressing, besides preventing the tree roots from receiving the benefit derived from the air, dew, and rain in open culture. The plan frequently adopted of cultivating narrow spaces each side of the rows of trees answers every purpose for four or five years after the trees are set, but it is rarely extended to keep pace with the growth of the roots. To grow the apple in perfection, a strong, moist soil, underdrained or free from stagnant water, should be selected. Though the trees may be equally well grown on a lighter and more porous soil, the fruit, owing to the continued bright, hot days in August, often causing severe drought at the most critical time in the growth of winter fruit, will not attain the size that commands the highest price in market. When the ground is in condition to produce from fifty to seventy-five bushels of corn to the acre, the trees may be set forty feet apart, and, until they become of

sufficient size to produce a paying crop, the various vegetables, or, if convenient to market, the summer fruits, may be grown among the trees, and if judiciously managed these will pay a profit above the cost for fertilizers and labor.

The regularity with which apple trees in this vicinity produce their crops upon the even years causes great irregularity in prices in different years, and places the grower under the disadvantage of being obliged to sell by far the larger portion of his fruit when it brings the lowest price.

How to increase the crop upon the odd year, and how to dispose of the abundant crop to the best advantage upon the even year, are questions of the first importance to the growers of this fruit. The fact that the bearing year of some orchards has been changed by the ravages of the canker worm, and also by the killing of the fruit buds on the bearing year by late frosts, leads directly to the conclusion that this desirable result may be attained by removing the fruit buds from young trees on the even year, and we have some well attested cases, in this immediate vicinity, where this course has been followed, and the result has been a full crop of fruit upon the odd year. An orchard at East Marshfield, when it commenced fruiting, showed all the indications of bearing, as usual, upon the even year, but the owner removed all the fruit buds for three or four successive even years, and the result has been that for the last twenty-five years he has had full crops on the odd year. In this orchard the Baldwin, more than any other variety, has shown an inclination to return to its early habit, these trees having produced some fruit on the even year, though by far the larger quantity on the odd year. Another means of obtaining the same result is by budding or grafting from trees that bear on the odd year. We have numerous instances of this kind where trees have been budded in the nursery, and this habit of fruiting has been transmitted through the bud, and the trees have for many years continued to produce the larger portion of their fruit on the odd year.

When we consider the variation in prices, and that every other year we are largely dependent upon the West for this fruit for domestic uses, we see the importance of producing by the means suggested, or by others, a greater equality in different years.

The question how to dispose of the apple crop in a fruitful season to the best advantage, has been of more than usual interest the past year. Notwithstanding the constantly increasing demand in our

own markets, through the increase of population and new methods of using this fruit as an article of diet, the unprecedented crop of 1878 exceeded the demand for home consumption, and considerable quantities were sold at prices returning the growers little or no profit, though this was confined almost entirely to three classes of fruit. First, the early varieties, thrown upon the market in large quantities before the demand had fairly commenced, and when the market was liberally supplied with berries and other small fruits admitting little or no delay in selling, brought very low prices. Second, fruit of an inferior quality, which, in competition with a good article at low prices, found few buyers and could have been better utilized where grown, as food for cattle and swine. Third, fruit that was unfavorably located for market, where the increased expense for freight and carting made the difference between a profit and a loss in a close market.

Commission and wholesale fruit dealers have been overstocked with apples through the season, but their energy and enterprise is helping to solve the question which we have asked. Several firms have paid special attention to the exportation of apples, and though it is impossible at this time to give the shipments for the year, as considerable quantities are being sent this month, we find that between September 1st, 1878, and March 1st, 1879, there were shipped from this port for Liverpool 140,500 barrels, and during the same time from New York to Liverpool 90,893 barrels. There were also sent from Boston to foreign ports other than Liverpool, 14,500 barrels, making from Boston alone to foreign markets 155,000 barrels. During the same time there were shipped from Boston to other places on the coast — largely to Philadelphia and Baltimore— 161,327 barrels, making the total shipment from Boston 316,327 barrels.

The prices realized from exported fruit have varied more than those of our home markets, but in the hands of experienced dealers, who have learned the best time of shipment, the proper selection and packing of the fruit, and its storage in the vessels, as a rule satisfactory returns have been received.

The earlier shipments arrived in better condition than the later ones. The apple, after being kept a certain length of time, becomes more easily damaged by the atmospheric changes in transportation ; the skin becomes discolored, the flesh directly underneath dry, and decay soon follows. This was illustrated in the fall ship-

ments ; the first fruit sent was the Gravenstein, which brought good prices, inducing some parties to make a second shipment of the same variety, but the fruit arrived in a damaged condition and caused a loss to the owners. The same is now true of the Rhode Island Greening and Baldwin, which bore transportation in the earlier winter months with comparatively little loss. The Roxbury Russet proves the most desirable for late shipment. The Newtown Pippin is the best known and most highly appreciated American apple abroad, but past experience would not warrant the attempt to grow it in this vicinity. For early shipment the Gravenstein and Hubbardston Nonsuch, and later the Rhode Island Greening, Baldwin, and Roxbury Russet, give a variety covering the season, and, if properly picked and selected, and carefully packed, in perfectly dry, clean barrels, and shipped at the most favorable season of the year, may reasonably be expected to make satisfactory returns to the owners.

Considerable difficulty has been experienced by dealers in securing suitable accommodations on board vessels, they having often been obliged to stow the fruit with mixed freight, or with live stock and grain, which generate heat and an atmospheric condition most unfavorable for keeping fruit, but as the trade increases and its wants are better understood there will doubtless be improvements made in the methods of transportation, and there seems to be no reason why a large and profitable trade may not be done in the exportation of American apples.

Your Committee believe that if farmers will give to the cultivation of the apple the same care they give to other crops, and exercise good judgment in gathering and marketing, there is no reason why the apple should not prove one of the most profitable New England crops.

E. W. Wood,
Leander Wetherell,
Jacob W. Manning,
} *Committee.*

Discussion.

The Chairman remarked that the report was compact, and full of good suggestions, particularly in regard to three points: first, changing the bearing year; second, the importance of cultivating orchards; and, third, exportation.

Leander Wetherell asked if any one could explain why apple trees in the West bear the odd year. This was an important point which came up at the meeting of the Committee, but none of the members could explain it.

J. W. Talbot thought it is true that apple trees in the West bear every year more than they do here, and attributed it to the newness of the soil. His neighbor, Edward Sumner, manures his trees in the even year, and his Hubbardstons and Baldwins bear every year.

Mr. Wood said that the fact of a biennial crop of apples is thoroughly established. Fair specimens were shown by Walter Russell in 1877, which grew in his market garden, where they were manured, probably at the rate of twenty cords to the acre. In the bearing years trees make no growth in ordinary soils. The work of picking the blossoms from full grown trees is too great. If trees bear in the West every year there is no climatic reason why they should not here.

B. G. Smith said that he has a Williams tree which has scarcely failed to bear uniform crops for twenty years. He manures it every year.

E. P. Richardson thought it is the habit of the Williams to bear more or less every year.

J. W. Manning agreed with Mr. Richardson, but thought it bore more in the even year.

Mr. Wetherell thought that without special culture it would bear in alternate years.

Mr. Richardson said that his tree is in a strawberry bed and well fertilized.

N. B. White said that in an orchard adjoining his place there was a Baldwin tree half of which bore one year and the other half the next. The half bearing the odd year was grafted from an odd year tree. He had travelled much in the West, and though he had found the apples to some extent alternate bearers, there is not so

much difference as there is here. He thought it owing to excessive bearing and exhaustion of the soil here.

Mr. Manning thought the apples in the West did not bear uniformly every year, but that alternate bearing is the rule everywhere.*

Mr. Smith had no doubt that apples could be made to bear every year by high cultivation.

Mr. Talbot asked if, instead of manuring every year, it would not be better to manure in the even year, when, owing to the tendency to overbear and make no growth, the trees need the food most. Mr. Sumner, whom he had previously mentioned, manures his apple trees just as he would corn. The speaker said we allow too many apples to perish on the ground and breed insects. He thought he was going to have a good crop in 1877, but they were all punctured by the insects.

Mr. Wetherell said that W. H. Sessions, of Wilbraham, kept sheep in his orchard, which ate up all the windfalls and destroyed the insects. Swine will do the same.

Josiah Newhall said that apple trees which produce a moderate crop will often bear every year. When they bear such crops as that of last year there is actually no room to form fruit buds, unless the fruit is thinned. His Baldwins last fall touched each other for the space of a foot on the branch.

The Chairman remarked that when there is no room to form fruit buds, manuring will not help.

Mr. Wood doubted whether high manuring would produce annual crops, as he had noticed trees that got the wash of the road, but bore only in the even year. The Roxbury Russet does not bear so full in the even year as the Baldwin, and consequently bears some in the odd year.

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*At the annual meeting of the Ohio Horticultural Society, December 5–7, 1877, M. B. Bateham, the Secretary, spoke of the constantly increasing tendency of the orchards in Ohio to bear alternately an excessively large crop and then a very small one or fail altogether, as the most serious drawback to profitable orchard culture in that state. He presented statistics showing the crops of 1875 and 1877 to be about one tenth those of 1874 and 1876. At the meeting in 1878, Mr. Bateham repeated these statements. His views as to the cause of the trouble agreed with those expressed in this and previous discussions. — Eleventh and Twelfth Annual Reports of the Ohio Hort. Society. — Editor.

Mr. Wetherell had noticed trees which got the wash of the road and were remarkably productive in alternate years.

Mr. Talbot said that he pruned more or less every year and kept his trees open. He takes out parallel limbs at any season of the year when he feels like it. Pruning in the fall throws the sap into the wood, and causes a great growth of wood; pruning in the summer throws it into the fruit. The same principles apply to pruning grape vines. He had got the best crops from his when they were summer pruned, but they must not be pinched too closely. He had not root-pruned much, but ploughed among his vines, cutting off some of the roots. If vines are summer pruned the roots will be but little longer than the tops, but if allowed to grow without pruning the roots will run for rods.

Benjamin P. Ware spoke of an orchard where the roots extended thirty feet from the trees, and when they were cut off in ploughing, and the growth of the wood was checked, they bore more abundantly than before. The same treatment will bring young trees into bearing, but they will be shorter lived than if they had not been made to bear prematurely. Mr. Ware mentioned an orchard of Pickman Pippins on the Pickman farm, which, by continually ploughing and cutting at the roots, were brought into full bearing when only fifteen years old. He had given the same treatment to an orchard of his own, and liked that style of cultivation. He has planted an orchard with the trees twenty feet apart, and intends not only to prune the roots but to cut back the tops. He had not practised summer pruning, but had no doubt of its being favorable to early bearing.

Mr. White had experimented in the same direction as Mr. Ware. He had headed down scions the first year, so as to cause the tree to branch low. Under this treatment the branches grow more on the under side than on the upper, and consequently are more upright than in trees pruned higher. He thought low pruning preferable to high, but the ground cannot be cultivated under the trees.

Mr. Manning spoke of a successful instance of summer pruning to induce fruitfulness, which he saw at Woodstock, New Brunswick. The ends of the shoots were pinched in summer, and apple trees an inch and a half in diameter at the butt bore a hundred specimens each. One of the favorite varieties was called the New Brunswick apple. It is very much like the Duchess of Oldenburg. The gardener claimed that he could control the fruiting of large

trees, and that root-pruning was an infallible preventive of winter killing.

Mr. Wetherell spoke of a neglected orchard on his father's farm, which, after being ploughed and having the roots torn, took a new lease of life, but he thought this effect due to the cultivation rather than to the root-pruning.

Mr. Ware said that orchards will not bear abundantly so long as they continue to grow vigorously, but as soon as the growth is checked—by root-pruning for instance—they produce abundantly. He mentioned a young orchard in Worcester County, which grew very vigorously, but bore so little that the owner became disgusted, and, hardly caring whether he destroyed it or not, went through it with a large breaking-up plough and cut off many large roots, after which it bore abundantly. It had previously been in grass. Mr. Ware had inserted scions which bore full the second or third year, but they never grew.

John B. Moore said that he had listened with much interest to the report of the Committee, and thought that they had taken the right ground in regard to the selection of land for orchards, that is not too valuable. There are many rocky, springy hill-sides where apples can be grown to a profit. Proper cultivation will give all the root-pruning they need. It is very unusual for an orchard to make an excessive growth when laid down to grass. In the light soils of Middlesex County an orchard is almost destroyed by remaining in grass many years.

Mr. Wetherell asked why it was there were so many fine apples grown in Acton, Westford, and other towns in Middlesex County.

Mr. Moore replied that many of the orchards in the towns referred to were on rocky and springy hill-sides.

Mr. Ware said that the orchard in Worcester County to which he referred was on strong land. When an orchard is kept in grass as this was, many of the roots will be found near the surface, and some of these from two to three inches in diameter were cut in ploughing. Orchards on soil of ordinary quality, will not generally grow in grass. He knew of trees on the Pickman farm which attained three feet in diameter where the ground was hardly ever ploughed. Trees in a natural position like that will grow to a large size and continue in health and vigor much longer than those on highly cultivated land.

Mr. Wetherell spoke of a farmer in Westford who got three thousand barrels of apples a year without cultivation.

Mr. White mentioned a section of an apple tree at the rooms of the Boston Society of Natural History, three and a half feet in diameter one way and four and a half feet the other. It grew on the edge of a meadow in Norwood and no one can remember when the ground where it grew was ploughed. Girdled apple trees will bear one year and die the year after. A peach orchard in Michigan, which was girdled out of spite, bore such an abundant crop that the question arose whether it would not be profitable for peach growers to girdle all their trees, but the next year all the trees died. The unusual crop was merely the effort of nature to reproduce the trees by seed when their lives were threatened.

Mr. Manning spoke of the Zaccheus Reed farm in Westford, which was famous for Baldwin and Porter apples. The owner selected the fruit carefully and kept up his price. Where he could not plough, he dug the ground with a grub hoe as far as the branches extended. Occasionally, in a good soil, you can get a crop of apples without cultivation, but not generally.

Mr. Talbot spoke of orchards in Sherburne which were never cultivated, but got the wash from above. When trees in grass stop growing it is time to cultivate them. The most successful orchard he ever saw was in Harvard. The owner pruned his trees very open in the centre, so as to let the sun in to all the fruit.

Mr. White remarked that many people were scraping their trees at this season, and cutting into the live bark, which he thought injurious. Now, he said, was the time to catch insects; by hanging a light over a tub of water with a little oil on the surface immense numbers of moths and millers may be destroyed.

Mr. Wood said that the Committee, in their report, did not think of apple-growing in the vicinity of Boston, but in the State generally. When they say in their report that New England possesses many advantages for the profitable cultivation of apples, they distinctly mention low priced lands as one necessary point, and on such land, with other favoring circumstances, they believe it to be strictly true that apples may be grown to a profit. The cases stated here to the contrary are exceptional. Mr. Wood spoke of an orchard in grass in the town of Upton, through which a road was cut, leaving one row on the lower side of the road, in which he grafted two trees with the Rhode Island Greening. This row,

which got the wash of the road, still remains and produces fair crops, but all those on the upper side of the road have died. Farmers seldom give special attention to their orchards. The trees are frequently planted in the margins of mowing fields, and the cattle, when turned in for the fall feed, browse on the trees. His experience and observation did not show many cases where root-pruning was needed to induce fruitfulness. There is seldom any lack of this in an even year.

M. H. Merriam said it was apparent from the discussion that circumstances alter cases. A great variety of effects result from a variety of causes, but similar effects are sometimes attributed to a variety of causes. Thus the production of apples in the odd year has been attributed to top-pruning, root-pruning, and manuring, but the underlying principles all point in the same direction. To the best of his recollection apple trees in his youthful days bore regular annual crops, but climatic causes, etc., have brought about alternate bearing. Whatever threatens the life of a tree will cause fruiting. Mr. Ware's root-pruning is in harmony with this. On the same principle, florists bring the plants intended for sale into flower, by confining the roots in small pots. The question how to cause a tree to bear fruit every year is a complex one, involving a consideration of the effect of root-pruning, top-pruning, and drought—all threatening the life of the tree. To produce the best development of any plant the equilibrium between the root and top must be maintained. If there is an excessive growth of wood, it will not ripen. To arrive at intelligent conclusions on any subject, all the facts converging to that point must be considered. All the discussions today point to the possibility of bringing trees into early bearing.

Mr. Manning said, in regard to the recommendation of the Committee to plant apple trees forty feet apart, that some varieties should be planted more closely. On a dry, rocky hill they should be planted nearer than on a rich soil. Those varieties which make upright, narrow tops should be planted in a row by themselves, and more closely than the spreading varieties.

Mr. Wood said that the report was intended particularly for farmers who wish to grow crops between their trees. The fact that the best fruit is always found on the outside row of an orchard, shows the desirability of wide planting. The Gravenstein, Baldwin, and Roxbury Russet, and most winter kinds are spreading growers.

Mr. Talbot spoke of a Greening tree in his father's dooryard, under which shingles were shaved and the shavings left twelve or eighteen inches deep. The next year and the year after, the tree bore more than in any previous six years, which he attributed to the moisture retained by the mulching of shavings.

Mr. Moore mentioned the orchard of R. L. Pell, at Esopus, on the Hudson river, famous more than a generation ago for its Newtown Pippin and other apples. Mr. Pell aimed to assist nature so as to enable his trees to bear every year. He had noticed that excessively productive trees required a year to recover themselves—that is to extract from the earth and the atmosphere the materials to enable them to produce again—but he found that if supplied with proper food they would bear every year. He accordingly manured with stable manure, and a peck of oyster shell lime to each tree. His land may have required lime, while other orchards may not.

The Chairman said that all who had attended these meetings must be convinced that those who have farms have had work enough cut out to last a good while. Though the chief value of these meetings is not so much to decide things on the spot as to suggest points to be considered, he believed it was settled that as good apples could be produced in New England as anywhere. A little way back from the city much land suited for apple orchards could be found. It is a matter which has been neglected, and the speaker had often been pained by seeing orchards which had received no care after being set out. If we are satisfied by what has been said here that apples can be produced profitably in New England, why should we not go on and plant?

The report of the Committee was unanimously accepted and the meeting then adjourned *sine die*.

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society,

FOR THE YEAR 1879.

PART II.

BOSTON:
PRINTED FOR THE SOCIETY.
1880.

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

BUSINESS MEETING.

SATURDAY, April 5, 1879.

A duly notified stated meeting was holden at 11 o'clock, Vice-President C. O. WHITMORE in the chair.

William E. Endicott, Chairman of the Committee to prepare resolutions in memory of John M. Merrick, reported the following:

Whereas, it has been the will of God to remove from earth our late associate, John Mudge Merrick; and

Whereas, it becomes us, as our members are one by one called away, to give proper expression to the estimation in which we hold their labors and their example;

Resolved, That we deplore the loss of a valued member, whose interest in the objects of this Society never faltered, and who, as a member of committees, rendered to it important services; one who not only loved but successfully practised the noble art which, by beautifying and improving the earth, aims to promote the happiness and welfare of the human race; one who has illustrated that art by his work on the strawberry, and by his articles upon the culture of the grape, and other kindred topics.

Resolved, That by his death science has lost one whose achievements in his chosen walk had placed him in its foremost rank; one whose opinions upon scientific subjects were always received with respect, and whose last endeavors in the line of his profession

were devoted to the philanthropic purpose of allaying a needless public alarm.

Resolved, That his death is to be deplored on broader and higher grounds than such as relate to Horticulture and Chemistry. By the will of Providence, society at large has lost a man whose active mind could not be confined to either Art or Science; who delighted in daily intercourse with the great minds of Greece and Rome, and whose love of learning had made him as familiar with French and German literature as with that of his native tongue. His friends must forever miss the keen wit, the overflowing humor, the nobility and purity of soul which made companionship with him so delightful. Upon his household falls the grievous loss of a devoted husband, and a tender father who gave his life for his son.

Resolved, That we tender our sympathy to his bereaved family; that a copy of these resolutions be sent them, and that the same be entered upon the records of the Society.

William E. Endicott,
Marshall P. Wilder,
John C. Hovey,
} *Committee.*

Remarks were made by W. C. Strong, J. C. Hovey, W. E. Endicott and Robert Manning, and the resolutions were unanimously adopted.

William C. Strong presented the following resolution:

Resolved, That this Society has learned, with sincere regret, of the accident which has happened to our Ex-President, Marshall P. Wilder, and which has, for the present, deprived us of the pleasure of his presence at our meetings, and we trust that the favorable symptoms which are announced to us this morning will continue, so that we may soon greet him at his post among us.

On motion of Aaron D. Capen, it was unanimously

Voted, That the above resolution be adopted and entered on the records, and that a copy be sent to Mr. Wilder.

Daniel H. Hayward, of North Cambridge,

having been recommended by the Executive Committee, was, on ballot, duly elected a member of the Society.

Adjourned to Saturday, May 3.

BUSINESS MEETING.

SATURDAY, May 3, 1879.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President C. O. WHITMORE in the chair.

The Committee on the Semi-Centennial Anniversary reported the following action:

At a meeting of the Committee on the celebration of the Semi-Centennial Anniversary of the Society, it was

Voted, That on account of the accident to Hon. Marshall P. Wilder, who had been invited to deliver the address on that occasion, it is expedient to postpone the celebration until the time of the Annual Exhibition, in September.

WILLIAM GRAY, JR., Chairman.

Voted, That the above report be accepted and entered on the records.

Voted, That the Committee of Arrangements be authorized to accept any donation that may be made for Special Prizes at the Rose and Strawberry Exhibition, and to offer the same in prizes.

Adjourned to Saturday, June 7.

BUSINESS MEETING.

SATURDAY, June 7, 1879.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President JOHN C. HOVEY in the chair.

The Secretary read a communication from the United States Board of Trade, Manufactures, Commerce, and Agriculture, requesting the Society to send two delegates to the meeting of the Board in New York on the 18th of June, 1879. On motion of J. H. Woodford, William Gray, Jr., President of the Society, and Hon. Francis B. Hayes, were chosen delegates, with power to appoint substitutes.

Meeting dissolved.

BUSINESS MEETING.

Saturday, July 5, 1879.

A duly notified stated meeting of the Society was holden at 11 o'clock. The meeting was called to order by Vice-President C. O. Whitmore, and afterwards presided over by Vice-President John C. Hovey.

The following named persons having been recommended by the Executive Committee were, on ballot, duly elected members of the Society:

William C. Eustis, of Hyde Park.
Benjamin F. Brown, of Charlestown.
Mrs. Mary L. Pratt, of Hingham.
John A. Buckingham, of Newton.
Edmund Hersey, of Hingham.
George H. Chapin, of Watertown.
Gardner S. Chapin, of Arlington.

Adjourned to Saturday, August 2.

BUSINESS MEETING.

Saturday, August 2, 1879.

An adjourned meeting of the Society was holden at 11 o'clock, President Gray in the chair.

Agreeably to the Constitution and By-Laws, the President appointed the following named members a Committee to nominate suitable candidates for the various offices of the Society for the ensuing year: C. M. Hovey, F. Parkman, J. H. Woodford, E. W. Wood, C. M. Atkinson, C. O. Whitmore, J. B. Moore.

On motion of W. H. Spooner, it was unanimously

Voted, That the thanks of the Society be presented to those gentlemen who so generously contributed the means whereby Special Prizes of Silver Cups were offered for Roses at the recent exhibition.

The President appointed the following named members delegates from this Society to the meeting of the American Pomological Society, at Rochester, N. Y., September 17–19, with power to add to their number: Marshall P. Wilder, Charles M. Hovey, James F. C. Hyde, William C. Strong, John B. Moore, Benjamin G. Smith, J. W. Manning, O. B. Hadwen, Aaron D. Capen, E. L. Sturtevant, Robert Manning, Hervey Davis, Thomas C. Thurlow, Samuel Hartwell, Leander Wetherell.

Adjourned to Saturday, September 6.

BUSINESS MEETING.

SATURDAY, September 6, 1879.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President C. O. WHITMORE in the chair.

E. W. Wood, from the Committee to nominate candidates for the various offices of the Society for the year 1880, presented a printed list, and it was

Voted, That the Nominating Committee be continued, and requested to nominate candidates in place of any who may decline before the election.

The Secretary read a letter from Preston Powers, of Florence, Italy, requesting, in behalf of the Royal Horticultural Society of Florence, seeds of vegetables, flowers, and ornamental American trees. The letter was referred to the Chairmen of the Fruit, Flower, and Vegetable Committees.

John C. Hovey, from the Committee on the Semi-Centennial Anniversary of the Society, reported that the address by Ex-President Marshall P. Wilder would be delivered in the Upper Hall, at three o'clock, on Friday, the 12th instant, and that the dinner, for which tickets could be procured from the Treasurer for $2.50 each, would be at Young's Hotel, at half-past five.

The Chairman of the meeting called the attention of the members present to the subscription for the History of the Society, and

expressed the hope that all who had not subscribed would do so, and that all would use their influence to obtain subscriptions.

Bradford Torrey, of Boston, and
Samuel L. Boardman, of Mount Auburn,

having been recommended by the Executive Committee, were, on ballot, duly elected members of the Society.

Adjourned to Saturday, September 13.

BUSINESS MEETING.

Saturday, September 13, 1879.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President C. O. Whitmore in the chair.

C. M. Hovey, Chairman of the Nominating Committee, presented the following additional report:

The Committee appointed by the Society for the nomination of officers have attended to that duty, and have already placed before you their report.

The Committee also authorize their Chairman to state that in the performance of their duty, they have deviated somewhat from the usual course, but they wish to state that in doing so they had in view the desire to popularize our elections, and to honor members of the Society who have labored in its behalf. They, therefore, recommend to the Society the adoption of the following vote, passed at their meeting:

On motion of C. O. Whitmore, it was unanimously voted that in the selection of a candidate for President, the Committee be not bound by the former precedent of selecting such candidate from the list of Vice-Presidents. It was also voted, on motion of the same gentleman, that the Chairman be requested to recommend in his report, that in future the Presidents and Vice-Presidents be ineligible for more than one re-election.

The report was accepted, and the vote was adopted.

John C. Hovey moved that the Society invite the American Pomological Society to hold its meeting in the City of Boston, in

1881. Mr. Hovey stated that he made this motion at the request of Hon. Marshall P. Wilder, President of the Pomological Society. After discussion, the motion was laid on the table.

Meeting dissolved.

BUSINESS MEETING.

SATURDAY, October 4, 1879.

A stated meeting of the Society, being the annual meeting for the choice of officers, was holden at 11 o'clock, Vice-President C. O. WHITMORE in the chair.

The Recording Secretary stated that due notice had been given of the meeting, in accordance with the Constitution and By-Laws.

C. M. Hovey, Chairman of the Nominating Committee, made a further report that Charles S. Sargent had declined the nomination as a member of the Executive Committee, and that, agreeably to the vote of September 6th, the Committee had nominated C. H. B. Breck in his place.

The Chair appointed Benjamin G. Smith, E. W. Buswell, and John C. Hovey, a Committee to receive, assort, and count the votes given, and report the number.

On motion of John C. Hovey, it was voted that the report of the Committee to count the votes be made in detail.

The polls were opened at ten minutes past eleven, and it was voted that they remain open one hour.

On motion of C. M. Atkinson, it was

Voted, That the Committee on Establishing Prizes be requested to consider the importance of a Spring show of bulbs, and to arrange the premiums with a view to that object.

On motion of W. C. Strong, Chairman of the Publication Committee, it was voted to appropriate the sum of five hundred dollars to the use of that Committee, for the publication of the History of the Society, this appropriation having been recommended by the Executive Committee. Mr. Strong urged all who had not subscribed for the History to do so, and to use their influence with other members to induce them to subscribe.

The polls were closed at ten minutes past twelve, and the chair was afterwards taken by Vice-President C. H. B. Breck.

The Committee to receive, assort, and count the votes given, and report the number, reported the whole number to be one hundred and thirteen; necessary for a choice, fifty-seven; and the candidates having that number were, agreeably to the Constitution and By-Laws, declared by the Vice-President to be elected officers and standing committees of the Society for the year 1880.

Adjourned to Saturday, November 1.

BUSINESS MEETING.

Saturday, November 1, 1879.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President John C. Hovey, in the chair.

The following resolutions were moved by C. M. Hovey:

Voted, That the thanks of the Society be presented to C. O. Whitmore for his long and faithful services as Vice-President, as well as for his labors as Chairman of the Finance Committee, and for the ability with which he has managed its financial affairs, commencing in and continuing through a period when it needed the aid of one so well fitted to assist in developing its resources and conducting its financial concerns.

Voted, That the Society request Mr. Whitmore to sit for his portrait, as a slight token of their appreciation of the deep interest he has ever manifested in the welfare and progress of the Society.

Voted, That the Society appropriate such an amount as will be necessary for this object, and that the Treasurer be authorized to pay the same.

Voted, That a Committee be appointed to wait upon Mr. Whitmore and communicate these resolutions.

The resolutions were unanimously passed, and the Chair appointed C. M. Hovey, Francis Parkman and William Gray, Jr., as the Committee provided for in the last resolution.

Agreeably to the Constitution and By-Laws, the Executive Com-

mittee reported a recommendation that the amount to be offered for Prizes and Gratuities for the year 1880, be $3,050. They also recommended an appropriation of $200 for the Library Committee, for the purchase of magazines and newspapers, binding of books, and incidental expenses of the Committee, and an appropriation of $150 for the Committee on Publication and Discussion. The report was accepted, and the recommendations were laid over until the stated meeting in January.

William D. Stratton, of Jamaica Plain,
having been recommended by the Executive Committee, was, on ballot, duly elected a subscription member of the Society.

Adjourned to Saturday, December 6.

BUSINESS MEETING.

Saturday, December 6, 1879.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President, John C. Hovey in the chair.

The Annual Report of the Library Committee was read by William E. Endicott, Chairman.

The Annual Report of the Committee on Gardens was read by Joseph H. Woodford, Chairman.

The Annual Report of the Committee on Plants and Flowers was read by William H. Spooner, Chairman.

The Annual Report of the Committee on Fruits was read by John B. Moore, Chairman.

The Annual Report of the Committee on Vegetables was read by Charles N. Brackett, Chairman.

These Reports were severally accepted and referred to the Committee on Publication.

Charles M. Hovey, from the Executive Committee, reported the list of Prizes for 1880, with the approval of that Committee.

On motion of William H. Spooner, Chairman of the Committee on Plants and Flowers, seconded by John B. Moore, it was

Voted, That the Prospective Prize of $40, for the best Seedling

Flowering or Foliage Plant (other than Rose, Camellia, Azalea Indica, Tree Pæony, Hardy Rhododendron, or Hardy Azalea), be awarded to P. B. Hovey, for the Seedling Lily, Hoveyi, as recommended in the Report of the Committee on Plants and Flowers.

William Ewell, of Dorchester,

having been recommended by the Executive Committee, was, on ballot, duly elected a life member of the Society.

Adjourned to Saturday, December 20.

BUSINESS MEETING.

Saturday, December 20, 1879.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President John C. Hovey in the chair.

The Annual Report of the Committee on Publication and Discussion was read by William C. Strong, Chairman.

The Annual Report of the Committee of Arrangements was read by C. H. B. Breck, Chairman.

Robert Manning, Secretary, read his Annual Report.

These Reports were severally accepted and referred to the Committee on Publication.

The following vote was presented by John B. Moore, Chairman of the Fruit Committee:

Voted, That the award of a gratuity of one dollar to B. D. Hill, for Doyenne du Comice Pears, on the 12th day of November last, be stricken from the Report of the Fruit Committee, and that further action in the matter be referred to the Executive Committee.

Mr. Moore stated that it had been ascertained, and was admitted by Mr. Hill, that the dish of pears referred to was not grown by him.

The subject was discussed by Messrs. Moore, C. M. Hovey, W. C. Strong, O. B. Hadwen and others, and after various motions and reconsiderations the first part of the vote, viz., "That the award of a gratuity of one dollar to B. D. Hill for Doyenne du Comice Pears, on the 12th day of November last, be stricken from

the Report of the Fruit Committee," was passed in the affirmative, and the last part, referring further action to the Executive Committee, was rejected.

Adjourned to Saturday, December 27.

BUSINESS MEETING.

SATURDAY, December 27, 1879.

An adjourned meeting of the Society was holden at 11 o'clock, Vice-President C. H. B. BRECK in the chair.

On recommendation of the Committee on Plants and Flowers, through the Chairman, William H. Spooner, it was

Voted, That the Prospective Prize of $60, for the best Seedling Camellia, be awarded to C. M. Hovey, for Camellia Anne Marie Hovey.

Meeting dissolved.

REPORT

OF THE

COMMITTEE ON PLANTS AND FLOWERS,

FOR THE YEAR 1879.

By WILLIAM H. SPOONER, Chairman.

The season admonishes us that an account of our labor for the year is to be rendered. The radical alterations in the Schedule of Prizes this year changed the work so greatly that we shall report the several exhibitions as they occurred, (with, however, an occasional departure from strict chronological order for the purpose of bringing together all the exhibitions of certain plants) and closing with a brief reference to the various miscellaneous shows.

AZALEA AND ROSE EXHIBITION.

March 19.

The exhibition of Azaleas was not as large as on some former occasions, the venerable and ever enthusiastic Marshall P. Wilder being the only exhibitor. The weather proved too cold on that day to move tender plants with safety, but fortunately Mr. Wilder had taken the precaution to send in his plants on the day previous, thereby securing them from injury by frost, and rendering the exhibition a success in this department. They were, in fact, the principal feature of the show, and Mr. Wilder was awarded the first prize in the two classes of sixes, which his plants justly deserved, as they were in fine condition, and remarkably well grown and bloomed. Among them were the following varieties:

Baron de Vrière.	La Victoire.
Bernhard Andreas.	Magnifica.
Bijou de Paris.	Marquis of Lorne.
Crystallina.	Maximilian.
Decora.	Meteor.
Exquisita.	President Edmond de Ghellinck.
Fair Ellen.	Variegata.

Hovey & Co. exhibited, on the 10th of May, very good seedling azaleas from which, undoubtedly, some desirable varieties will be selected.

Camellias.—Hovey & Co. were the principal contributors, taking the first prizes for twelve and six. They have also twice exhibited some of their very fine seedlings, which have been noticed in reports of former years. April 26th, John L. Gardner presented a monster camellia, called Derbyana, measuring five and a half inches in diameter.

Cyclamens.—C. B. Gardiner again marshalled his forces, not in such numbers as in former years, but with a goodly company of well grown plants, taking all but one of the prizes. November 12th, James Cartwright presented a group of seedling plants in beautiful condition, with flowers well developed. The seed was sown in January, 1879, and the plants having been kept in a vigorous condition of growth through the season, produced the satisfactory result manifested in his exhibit. It is gratifying to notice such attainments by our practical gardeners.

Orchids.—In the prize exhibition at the Azalea Show, March 19th, F. L. Ames, Hovey & Co. and Joseph Tailby, were the contributors in this department. Mr. Ames was first, with three fine plants. Hovey & Co. were second, with *Cypripedium hirsutissimum*, *Lycaste Skinneri and Maxillaria Harrisoniæ*.

Mr. Ames gained the first prize for a single plant with *Dendrobium Wardianum*, and Mr. Tailby the second prize with *Odontoglossum leopardinum*.

Mr. Tailby has frequently exhibited during the season admirably grown plants of choice orchids, as have also Hovey & Co. and James Cartwright.

RHODODENDRON SHOW.

June 7.

This exhibition was, perhaps, equal to those of former years.

Rhododendrons. — The principal exhibitors were Francis B. Hayes, H. H. Hunnewell and John L. Gardner. Mr. Hayes was first with forty-eight trusses of blooms, among which were the following varieties:

Alaric.
Alarm.
Album elegans.
Adrian.
Archimedes.
Atrosanguineum.
Auguste Van Geert.
Brayanum.
Candidissimum.
Chancellor.
Charles Bagley.
Concessum.
Étendard de Flandres.
Fair Helen.
Fastuosum flore pleno.
Glennyanum.
Hannibal.
James Bateman.
John Waterer.
Lady Armstrong.
Lady Dorothy Neville.
Lady Frances Crossley.
Madame Bertha Froebel.
Mirandum.
Mrs. Holford.
Mrs. John Waterer.
Mrs. Milner.
Onslowianum.
Othello.
Pres. Jos. Nap. Baumann.
Prince Albert.
Prince Camille de Rohan.
Princess Mary of Cambridge.
Queen of the West.
Raphael.
Rosabel.
R. S. Field.
Scipio.
Sherwoodianum.
Sir Robert Peel.
Stella.
Titian.
Towardii.

John L. Gardner was first with twenty-four and twelve trusses, but a list of the varieties was not furnished the Committee.

Francis B. Hayes took the first and second prizes for single trusses with Joseph Whitworth and Lady Clement.

Mr. Hayes has several times during the season presented rare selections of flowers from his large collection of Rhododendrons, which is probably unsurpassed in the country, as those can attest who were fortunate enough to visit his grounds during the blooming

season; as arranged under his mammoth tent the effect was truly magnificent.

Mr. Hunnewell exhibited a large stand of very choice flowers, but, as usual, did not enter them for competition.

Hardy Azaleas.—This exhibition occurred with the Rhododendron Show, June 7th, and was not as large as usual. E. Sheppard was first in twenty-four varieties, with very choice flowers, but he has not furnished a list of them.

B. G. Smith was first in six varieties, with very fine blooms of

Baron George Pycke.	Graf von Meran plena.
Bouquet de Flore.	Ne Plus Ultra.
Gloire de Belgique.	Prince Frederick.

E. Sheppard took the first prize for a cluster of trusses with splendid flowers of Optima.

H. H. Hunnewell placed upon the tables a splendid selection of azaleas in great variety of color.

Azalea mollis.—Francis B. Hayes was the only exhibitor in this class, and took the first prize for six different varieties. He also showed a very beautiful collection on the 17th of May. The delicate softness of the color of the flowers (which their name implies), and their increasing variety, together with their perfect hardiness, will render this class particularly attractive to planters.

James O'Brien was the only exhibitor of Bouquets, taking the first prize for the two classes.

J. Warren Merrill exhibited very choice Ferns, as also at the Annual Exhibition.

ROSE SHOW.

June 21.

This exhibition, which was scheduled for June 25th, was changed to the 21st, on account of the warm weather bringing roses forward rapidly. An unusual stimulus was given to this exhibition by the special prizes of silver cups offered through the liberal contributions of members of the Society, for which we are particularly indebted to our associate, C. M. Atkinson, with whom the idea originated, and through whose exertions the means were supplied. The following letter, which accompanied the gift, will explain the object in view in offering the prizes, and we believe that they will

result in an increased cultivation of the Queen of Flowers hardly imagined by our most enthusiastic growers:

Boston, June 21st, 1879.

W. H. Spooner, Esq.,

Chairman of Committee on Plants and Flowers, Massachusetts Horticultural Society:

Dear Sir,—On behalf of the subscribers it gives me great pleasure to place in the hands of your Committee the Silver Cups which accompany this, to be awarded at the Rose Show of the Society for 1879. The six smaller cups are offered as follows:

One for the best three Roses of any one variety.
" " " six " " " "
" " " twelve " " " "
" " " three Roses of different varieties.
" " " six " " " "
" " " twelve " " " "

A special entry for the above six prizes is necessary. In all other respects the "General Rules and Regulations" must be complied with.

The large cup is offered for the best twenty-four varieties, three specimens of each, and is to be held by the winner for three consecutive years before becoming his property absolutely.

It is not intended, in the award of this prize, that Rule 3 of the "Special Rules of the Flower Committee" should be applied.

Roses competing for these prizes must be exhibited in boxes of the dimensions prescribed in the "Schedule" of the Society for the different classes.

I remain yours, respectfully,

C. M. Atkinson.

The competitors for the prizes were numerous; entries were made by President Gray, John L. Gardner, John B. Moore, and others. The Challenge Cup for the best twenty-four varieties, three specimens of each, was secured by William Gray, Jr., for

Alfred Colomb.
Baronne Prévost.
Charles Lefebvre.
Comtesse d'Oxford.
Docteur Andry.
Duchesse d'Orleans.
Duhamel du Monceau.
Duke of Wellington.
Étienne Levet.
Félix Généro.

Ferdinand de Lesseps.
François Michelon.
Gen. Jacqueminot.
Jules Margottin.
Mme. Clemence Joigneaux.
Mme. Marie Cirodde.
Mme. Marius Cote.
Mme. Nachury.
Mme. Victor Verdier.
Marquise de Castellane.
Pierre Seletzski.
Richard Wallace.
Sir Garnet Wolseley.
Vicomtesse de Vézins.

The Silver Cup, for the best three Roses, of different varieties, was awarded to John L. Gardner, for President Thiers, John Hopper, and Exposition de Brie.

The Silver Cup, for six Roses, of different varieties, was awarded to William Gray, Jr., for

Devienne Lamy.
Édouard Morren.
Exposition de Brie.
Baroness Rothschild.
Sénateur Vaïsse.
Henri Ledéchaux.

The Silver Cup, for twelve Roses, of different varieties, to William Gray, Jr., for

Baron de Bonstetten.
Comtesse de Sérényi.
Duchesse de Caylus.
Fisher Holmes.
John Hopper.
Marguerite de St. Amand.
Marie Finger.
Marquise de Ligneries.
Monsieur Boncenne.
Princesse A. Strozzio.
Souvenir de Comte Cavour.
Victor Verdier.

The Silver Cup, for three Roses of one variety, was awarded to John B. Moore, for Charles Lefebvre.

The Silver Cup, for six roses of one variety, to John B. Moore, for Horace Vernet. These Roses were particularly beautiful.

The Silver Cup, for twelve Roses of one variety, to William Gray, Jr., for Pierre Notting. These were choice specimens of the sort.

In the general list, for twenty-four varieties, two of each, the first prize was awarded to William Gray, Jr., for

Alfred Colomb.
Annie Laxton.
Baronne Prévost.
Caroline de Sansal.
Charles Lefebvre.
Devienne Lamy.
Dr. Andry.
Dr. de Chalus.
Duchess of Edinburgh.
Dupuy Jamain.
Exposition de Brie.
Félix Généro.

Ferdinand de Lesseps.
La Souveraine.
Mme. Laurent.
Mme. Marius Cote.
Mme. Scipion Cochet.
Maréchal Vaillant.
Marquise de Castellane.
Monsieur Boncenne.
Nardy Frères.
Paul Neron.
Sénateur Vaïsse.
Vicomtesse de Vezins.

For twelve varieties, the first prize to Francis B. Hayes.

For six varieties, the first prize to J. S. Richards.

For a basket of roses, John L. Gardner received the first prize, for one of great beauty, which excited much admiration.

For Moss Roses, nine varieties, John L. Gardner was first, with

Celine.
Common.
Comtesse de Murinais.
Crested.
Denis Helye.
Glory of the Mosses.
Laneii.
Madame Alboni.
Princess Adelaide.

For six varieties, W. H. Spooner took the first prize, with

Baronne de Wassenaer.
Common.
Crested.
Gracilis.
Laneii.
Perpetual White.

The general display of Hybrid Perpetual Roses was particularly fine; J. S. Richards, J. B. Moore and Walker & Co., securing the several prizes.

There was no competition for prizes in Tea Roses, Fuchsias, and Delphiniums.

Forced Roses in Pots. — James Comley exhibited, March 1st, a plant of Hybrid Perpetual, Sir Garnet Wolseley, of remarkable size, measuring five feet in height, and eleven feet in circumference, and having one hundred and thirty expanded blossoms. At the exhibition on March 19th, Joseph Tailby was the principal contributor, with remarkably fine flowers, securing the first prize for six cut blooms, with

Baron Hausmann.
Étienne Levet.
John Hopper.
Mons. Fillion.
Princess Beatrice.
Victor Verdier.

and the second prize, with

Comtesse de Sérényi.
Jules Margottin.
Marquise de Castellane.
Mlle. Claire Mathieu.
Mlle. Eugénie Verdier.
Mons. Boncenne.

Mr. Tailby also took the first prize for twelve cut blooms, with

Auguste Neumann.	Le Havre.
Boule de Neige.	Marie Baumann.
Capitaine Lamure.	Mme. Charles Crapelet.
Captain Christy.	Baroness Rothschild.
Henry Bennett.	Perfection de Lyon.
Hippolyte Jamain.	Pierre Notting.

For a single plant in pot he took the first prize with Marquise de Castellane.

Mr. Tailby exhibited, March 29th, a very beautiful group of twelve blooms of Mme. la Baronne de Rothschild, of very uniform size, indicating admirable culture. Also, on April 19th, a plant of the new rose, Mabel Morrison, a sport from the last named variety, but in color pure white, changing with age to a delicate flushed pink. The plant exhibited was grafted by Mr. Tailby, in December, 1878, and grown and bloomed in a four-inch pot, with a stem-growth of one and a half feet in height. The variety has apparently more vigor than its parent, while resembling it in form and general character, except in the color of the foliage which is somewhat lighter. It promises to be a great addition to the white roses, of this class, for forcing purposes.

John B. Moore has also been a frequent contributor of very fine forced Roses.

ANNUAL EXHIBITION.

September 9, 10, 11, and 12.

The Annual Exhibition was probably the best in respect to choice plants ever given by the Society, and its Semi-Centennial Anniversary being celebrated during this time, added to the interest of the occasion.

H. H. Hunnewell, and S. R. Payson, each presented very rare and remarkable specimens, and both collections were grouped with the best effect. President Gray also sent very fine foliage plants, and Hovey & Co. showed a large assortment of choice plants, but did not enter them for competition. The first prize for greenhouse plants was awarded to H. H. Hunnewell, for

Alocasia metallica.	*Croton Weismanni.*
Croton pictum.	*Croton Youngi.*

Cyanophyllum magnificum.
Dieffenbachia Bausei.
Dracœna Hendersoni.
Ficus Parcelli.
Maranta Makoyana.
Maranta Van den Heckei.
Philodendron Lindeni.
Phyllotœnium Lindeni.

The second to S. R. Payson for

Alocasia Sedeni.
Croton Disraeli.
Croton variegatum.
Croton Youngi.
Dœmonorops fissus.
Dracœna Baptistii.
Dracœna Mooreana.
Gymnogramme Peruviana.
Maranta Van den Heckei.
Maranta Veitchii.
Pandanus Veitchii.
Pritchardia Pacifica.

For a specimen plant, the first prize was awarded to H. H. Hunnewell, for *Sphœrogyne latifolia*, and the second to Hovey & Co., for *Latania rubra.*

For a specimen flowering plant, the first and second prizes to S. R. Payson, for *Aerides suavissimum* and *Odontoglossum grande.*

For variegated leaved plants, six varieties; the first prize to William Gray, Jr., for

Agave schidigera.
Alocasia macrorhiza var.
Ananassa sativa var.
Croton interruptum.
Dracœna Chelsoni.
Fittonia argyroneura.

The second to S. R. Payson, for

Alocasia macrorhiza var.
Croton maximum.
Croton pictum.
Dracœna regina.
Maranta regalis.
Pandanus Javanicus.

For a single specimen variegated leaved plant, the first prize to H. H. Hunnewell, for *Anthurium crystallinum.*

For six Caladiums, William Gray, Jr., took the first prize, with beautiful specimens of

Alfred Bleu.
Chantini.
Madame Duval.
Madame Houllett.
Meyerbeer.
Skopetzianum.

And the second with

Beethoven.
Boieldieu.
Napoleon 3d.
Houletti.
Jules Putzeys.
Madame Andrieu.

In Ferns, six varieties, Hovey & Co. were first, with

Adiantum assimile.	*Dictyoglossum* sp.
A. concinnum.	*Platycerium* sp.
Davallia Mooreana.	*Davallia* sp.

For Adiantums, six varieties, the first prize went to S. R. Payson, for

Amabile.	*Farleyense.*
Concinnum.	*Formosum.*
Cuneatum.	*Gracillimum.*

For Dracænas, six varieties, the first prize to S. R. Payson, for

Amabilis.	*Goldieana.*
Bausei.	*Magnifica.*
Excelsior.	*Nigricans.*

The second to Hovey & Co., for

Amabilis.	*Shepherdii.*
Baptistii.	*Terminalis.*
Imperialis.	*Youngi.*

F. L. Harris exhibited his seedling Dracænas, Bella, Harrisii, and others; also his new seedling, Wauban, of which the following is a description: —

Leaves rather spreading, eighteen inches in length by three and a half inches in width; ground color, dark, with a metallic lustre; edges, vermillion scarlet, shading to the centre of the leaf with dark orange; the shading of some of the leaves runs entirely through them, only leaving a few dark stripes; others are entirely orange and scarlet, presenting a very novel and unique appearance. Of spreading habit, and a free grower.

From Edward Butler came the beautiful seedlings which he has before exhibited, and which have been noticed in previous reports.

In Palms, the first prize for a single specimen went to Hovey & Co., for *Pritchardia Pacifica.*

For Agaves, six varieties; the first prize to Hovey & Co., for

Applanata.	*Hystrix.*
Bessereriana candida.	*Macrocantha.*
Heteracantha cœrulescens.	*Micracantha.*

The second to John C. Hovey, for

Americana medio picta.	*Filifera minor.*
Applanata.	*Gilbeyii.*
Celsiana.	*Regeli.*

For Cacti, twelve species and varieties, the first prize was awarded to J. C. Hovey, for

Astrophytum myriostigma.
Cereus marginata.
Echinocactus cylindraceus.
" *longihamatus.*
" *scopa candida cristata.*
Echinopsis multiplex cristata.
Mammillaria Bocasana.
" *gracilis.*
" *pusilla.*
" *pulcherrima.*
" *senilis.*
Opuntia albispina.

The second prize was awarded to Hovey & Co.

For Succulents (other than Agaves and Cacti), twelve species and varieties; the first prize to John C. Hovey, for

Aloe depressa.
" *ferox.*
Echeveria agavoides.
" *farinosa.*
Euphorbia mammillaris.
Gasteria brachyphylla.
Greenovia aurea.
Haworthia expansa.
" *Reinwardtii.*
Mesembryanthemum felinum.
" *mammillosum.*
Yucca aloifolia tricolor.

These collections of Agaves, Cacti, and other Succulents, were not large plants, but choice and rare specimens, — the best we have had presented for several years.

Of Tuberous Rooted Begonias, Carl Schaffer was the only exhibitor, and was awarded the first prize for very good plants.

Gladioli were not as largely exhibited as they have sometimes been, but the flowers were noticeably fine; the exhibitors were James Cartwright, George Craft, A. McLaren, John B. Moore, and W. H. Spooner. Very fine varieties were shown, during the season, by Francis B. Hayes, and M. H. Merriam. We have been particularly attracted by the many very excellent seedlings shown during the season; James Cartwright has exhibited seedlings of choice and distinct colors, strong spikes, and flowers of great substance; the latter is an improvement in the right direction, and our growers will eventually rival the celebrated French and English cultivators. The Garnet, a new seedling, was exhibited by William H. Spooner; color, dark garnet, shading to bright scarlet, the three lower divisions shading to a purplish white, with a dark purple stripe in the centre of each.

B. K. Bliss & Sons presented a group of *Gladiolus purpureo-*

auratus, a new species from Natal, quite distinct from the common species. On slender, bending stems, from three to four feet in height, are borne from eight to twelve nodding flowers, somewhat bell-shaped, yellow, with broad purple stripes on the lower divisions within. This species, crossed with the *Gandavensis* type, may lead to a new and desirable race, which to us seems the only benefit to be gained from it.

August 16th, J. F. C. Hyde exhibited some very fine spikes of his new seedling gladiolus, which he has named Hyde's White, and which he offers for the Prospective Prize for best flowering plant. Spike very strong, flowers of good substance, very large, and fully expanded, the petals very much recurved, and beautifully crisped, the three upper divisions pure white; the lower divisions cream-white, with a faint line of purple extending through the centre of each; the lower part of the perianth crimson purple. The whole spike produces a lovely effect, and it is probably the best white gladiolus yet introduced.

September 27th, we had from James Comley a seedling which he calls Madam Maria Carey; pure white with the lower part of the perianth bright scarlet; the flowers appeared to us somewhat lacking in substance, but age and strength of bulb may remedy this defect; in other respects the flower is a very fine one.

Asters were not shown in as large numbers, or of as good quality, as in former years, the show being probably rather late for the best flowers; the exhibitors were John L. Gardner, Parker Barnes, Mrs. E. M. Gill, and James Nugent.

Dahlias. There was brisk competition in these, with exhibits from Samuel G. Stone, Francis B. Hayes, James Nugent, Hovey & Co., John Parker, John B. Moore, and J. F. Marble.

October 11th, John L. Gardner presented a very fine group of show varieties.

Cut Flowers. This department was fully sustained with well arranged collections from Mrs. E. M. Gill, Mrs. A. D. Wood, and James Nugent, all of whom have made frequent displays during the season, as have also George Craft, John B. Moore, Miss S. W. Story, and Francis B. Hayes.

Parlor and Hand Bouquets were contributed by Hermann Grundel, and Mrs. E. S. Joyce.

Basket of Flowers and Table Designs were tastefully executed, the former by Miss S. W. Story, and the latter by Mrs. E. S.

Joyce, by whom this department of the exhibitions has always been well sustained.

James Comley exhibited the *Polygonum Japonicum*, a grand, new, hardy, ornamental climber, a rapid grower, with strikingly beautiful foliage in various shades of color, from green to gold, and mixed or variegated. The foliage and flowers resemble those of the Madeira Vine (*Boussingaultia*) in form.

From Hovey & Co. we had a new Agave, Victoria Regina, with variegated leaves, and a new Begonia, Comtesse de Thelusson; the centre of the leaf bright purple, edges deep bronze green; Messrs. Hovey & Co. also showed a collection of beautiful new Coleuses. E. Sheppard also exhibited fine Coleuses.

From A. H. Dunlap & Son, of Nashua, N. H., came a large collection of beautiful annual and biennial varieties of *Dianthus*.

CHRYSANTHEMUM SHOW.

November 12.

This exhibition, if not the largest, was one of the best in the quality of plants ever held by the Society. H. L. Higginson, and John L. Gardner, the competitors for the larger classes, presented plants remarkably well grown, with flowers well developed, and in the finest condition. One could hardly conceive of a more beautiful sight than was presented in the centre of the hall, which was filled with a mass of bright and lovely blossoms. The varieties exhibited were all so good, that we append full lists of them.

Mr. Higginson secured the first prize, for six large-flowered varieties, with

Bronze Jardin des Plantes.
Dr. Sharpe.
Duke of Edinburgh.
Empress of India.
Golden Queen of England.
Mrs. Mary Morgan.

Mr. Gardner was second, with

Aureum multiflorum.
Belladonna.
Guernsey Nugget.
Mount Edgcumbe.
Pink Perfection.
Progne.

Mr. Higginson took the first prize, for six pompon-flowered, with

Gen. Canrobert.
Mme. Maliez.
Mme. de Vatry.
Model of Perfection.
Nellie.
Stella.

Mr. Gardner the second, with

Boule de Neige.	Model of Perfection.
Gen. Canrobert.	Nellie.
Golden Circle.	Niobe.

For a single specimen plant, large-flowering, Mr. Higginson was first, with Christine. Mr. Gardner took the second and third prizes, with Mrs. Dixon and Ensign.

For a specimen plant, pompon-flowered, Mr. Higginson was first, with Mazeppa.

For four Japanese varieties, Mr. Gardner was awarded the first prize, for the following: —

Chang. — Very large flower; color, orange-red.

Fair Maid of Guernsey. — Pure white, very distinct, flowers very large, and long petalled.

Jupiter. — Light purple, shading nearly white.

M. Charles Hubert.—Large flower; color, deep orange, bronzed.

The second prize was awarded to Mr. Gardner, for the following: —

Peter the Great. — Large and showy flower; color, delicate lemon-yellow.

Purpureum album. — Rich purple, mottled white, petals very finely cut.

Purple King. — Light purple.

The Cossack. — Maroon and yellow.

Mr. Gardner also exhibited the very peculiar and appropriately named Golden Dragon; flower very large, the petals varying in length; bright golden yellow.

Miscellaneous Plants and Flowers. The impromptu exhibits, considering that there were no prizes offered, have been remarkably good, and the members have shown commendable zeal in sustaining these weekly shows. Francis B. Hayes, James Nugent, Mrs. E. M. Gill, George Craft, Mrs. A. D. Wood, John B. Moore, Mrs. E. S. Joyce, and Miss S. W. Story, have been among the most constant contributors.

Lilies have been frequently shown in new varieties. March 19th, R. Farquhar exhibited *Lilium Hokakio*, apparently an improved variety of *L. umbellatum*. June 14th, B. T. Wells showed the new lily *Chotuso;* large flower; color, pure white, in the way of *L. longiflorum*, with a margin of white along the edges

of the leaves; and on June 28th, *Hakura*, a white *L. auratum;* flower very large, with a light yellow or lemon band through the centre of each petal, the latter rolling back as in *L. auratum*. It is delightfully fragrant, and may be considered an acquisition to the ranks of the lilies. Mr. Wells also showed *Lilium Beni* and other varieties. July 5th, we had, from Francis B. Hayes, *L. Beni*, similar to *L. umbellatum*, but more distinct in color; also, a new variety of the *longiflorum* type, of very dwarf growth, petals separating in threes, highly scented; and on the 9th of August, *Lilium Yama*, of the Martagon type; color, delicate lemon. From A. G. Brown, July 5th, *Lilium Sai;* color, delicate pink, remarkably pretty, stem small, dwarf in growth, of the Martagon type, and appears to be hardy. From Hovey & Co., August 2, *L. Batemanœ*, deep apricot color, of the small stemmed type, resembling *L. Leichtlini* in this respect.

Carnations and Picotees. Excellent seedlings of these two classes of flowers have been shown by several persons. June 21st, William A. Bock exhibited a seedling Carnation of light rose color, which he called Charles Sumner. From Joseph Tailby, September 12th, came a seedling Carnation, Grace Wilder—a very striking flower; profuse bloomer, very fragrant; color delicate pink; plant a very strong grower. From the same, October 11th, a group of very fine seedlings, all remarkably fragrant. James Comley presented a very beautiful seedling; color, pure white. All these plants possess the desirable characteristic of having highly scented flowers, without much tendency to bursting in full development. July 12th, Hermann Grundel exhibited a very noticeable collection of seedling Picotees, with strongly defined colors; also, the same date, James Nugent some very good seedlings of the same class.

Native Plants have been exhibited in large numbers, by Mrs. C. N. S. Horner, F. W. Morandi, D. R. Beckford, Jr., Miss E. M. Harris, and, as usual, E. H. Hitchings. Among those shown by the last-named gentleman, were the following rare species:

Aletris farinosa.
Andromeda polifolia.
Calluna vulgaris.
Corallorhiza verna.
Cypripedium pubescens.
Danthonia compressa.
Drosera filiformis.
Echinodorus parvulus.
Eleocharis Englemanni, var. *detonsa.*

Eleocharis melanocarpa.
" *tuberculosa.*
Glaux maritima.
Gratiola aurea, var. *alba.*
Habenaria blephariglottis.
" *ciliaris.*
" *psycodes* (pure white).
Hottonia inflata.
Leucothoë racemosa.
Liparis liliifolia.
Limosella aquatica.
Lonicera cærulea.
Medicago sativa.
Ranunculus alismæfolius.
" *Flammula*, var. *reptans.*
Rhinanthus Crista-galli.
Scirpus supinus, var. *Hallii.*
Utricularia gibba.
Zizania aquatica.

On the 29th of March, Miss Cora H. Clarke exhibited a rare collection of Native Mosses.

June 7th, Hovey & Co. exhibited improved seedling Cacti.

June 14th, we had, from Jackson Dawson, *Gnaphalium leontopodium alpinum* (Edelweiss, or Snow Plant)—a rare specimen of this beautiful dwarf perennial, from six to eight inches high.

July 19th, John C. Hovey presented seedling Japanese Hollyhocks, with single flowers, edges strikingly marked, possessing the national type of most Japanese productions.

August 2d, we had, from John B. Moore, a very fine collection of Perennial Phloxes, in twenty-three varieties, together with six very good seedlings.

August 9th, Joseph Tailby exhibited a large pan of *Eucharis Amazonica*, admirably grown, and in fine condition, with seventeen flower stems and eighty-four blooms. Mr. Tailby has been very successful in the growth of this plant. On a visit to his grounds, the Committee saw, in one of his houses, a bench, fifty feet long and four feet wide, filled with plants; with five hundred and twenty-one blooming stems, and an average of six flowers to each.

John L. Gardner has exhibited fine seedling Polyanthus; also, a seedling Amaryllis, from Princeps.

Messrs. Hovey & Co. exhibited beautiful specimens of their new lily, *Hoveyi*, procured by P. B. Hovey with pollen of *Lilium auratum* (obtained in 1862, when the latter was first exhibited before the Society), with which he impregnated *L. lancifolium roseum* and *rubrum*, and the beautiful *L. Melpomene*. This lily was fully described in our Transactions for 1876 (Part. II., p. 36), and, as there mentioned, was offered for the Society's Prospective Prize of

$40, for the best flowering plant. The Committee recommend that this prize be awarded to P. B. Hovey, of Hovey & Co., for the *Lilium speciosum Hoveyi*, as he appears to have been the originator of the variety.

The Committee also recommend that the Prospective Prize of $60 for the best seedling camellia, be awarded to C. M. Hovey, of Hovey & Co., for Camellia Mrs. Anne Marie Hovey, which they offer for this prize. The following description of this camellia is by Mr. Hovey:

"Flowers about four inches in diameter, perfectly round, and imbricated to the centre, sometimes cupped and at others flat, or slightly reflexed; petals shell-shaped, round and entire on the edge. The prevailing color a clear, waxy white, delicately pencilled with crimson; but others are of the deepest and richest tint of pure carmine; some are delicate blush; others blush, striped with carmine; some are white, mottled with rose; others, white, stained or tinted with pale carmine. Some are half white and half carmine, and others white with the centre clear rose. In the shape and symmetry of the flower, and in the form and perfection of petal, it has no equal. The habit of the plant is upright and symmetrical; leaves medium size, deep green, rather conspicuously veined; growth vigorous. It flowers from January to May."

Your Committee have endeavored to recognize meritorious contributors from week to week, by awarding appropriate gratuities, and believe that the recipients have shown their appreciation of these endeavors by continued interest in the work of the Society.

The amount of money prizes awarded by the Committee is $1,367, out of the appropriation of $1,500, leaving a balance of $133.

Prizes have been awarded from the Hunnewell funds, to the amount of $66.

All which is respectfully submitted.

Wm. H. Spooner,
E. H. Hitchings,
Patrick Norton,
James Comley,
George Craft,
James Nugent,
F. L. Harris,

Committee on Plants and Flowers.

PRIZES AND GRATUITIES AWARDED FOR PLANTS AND FLOWERS.

January 11.

Gratuity: —

James Cartwright, *Cypripedium insigne*, ... $3 00

February 1.

Gratuity: —

John B. Moore, Display of Flowers, ... 2 00

March 1.

Gratuities: —

James Comley, Sir Garnet Wolseley rose, ... 5 00
" " Cut Roses, ... 2 00
D. F. Hayes, " " 1 00
Mrs. A. D. Wood, Cut Flowers, ... 2 00
Mrs. E. M. Gill, " " 1 00

March 8.

Gratuity: —

James Comley, Roses, ... 2 00

March 15.

Gratuities: —

Joseph Tailby, Roses, ... 1 00
Mrs. E. M. Gill, Cut Flowers, ... 1 00

AZALEA AND ROSE SHOW.

March 19.

Indian Azaleas.—Six named varieties, in pots, Marshall P. Wilder, 15 00
Six named varieties, in not exceeding ten-inch pots, Marshall P. Wilder, ... 8 00
Hybrid Perpetual Roses.—Single plant, in pot, Joseph Tailby, . 4 00
Twelve blooms, of twelve distinct named varieties, Joseph Tailby, 5 00
Six blooms, of six distinct named varieties, Joseph Tailby, . . 3 00
Second, Joseph Tailby, ... 2 00

Tender Roses.—Nine blooms, of nine distinct named varieties, James Comley,	$4 00
Second, William J. Vass,	3 00
Six blooms, of six distinct named varieties, W. J. Vass,	3 00
Second, James Comley,	2 00
Camellias.—Twelve named varieties, cut flowers, Hovey & Co.,	4 00
Six named varieties, Hovey & Co.,	3 00
Orchids.—Three plants of distinct species, in bloom, F. L. Ames,	5 00
Second, Hovey & Co.,	4 00
Single plant, in bloom, F. L. Ames,	4 00
Second, Joseph Tailby,	2 00
Cyclamens.—Six plants, in bloom, in not over eight-inch pots, C. B. Gardiner,	5 00
Second, C. B. Gardiner,	4 00
Three plants, in bloom, in not over six-inch pots, C. B. Gardiner,	3 00
Single plant, in bloom, C. B. Gardiner,	2 00
Primulas.—Three varieties, in bloom, E. Sheppard,	3 00
Amaryllis.—Three varieties, in pots, the second prize to Hovey & Co.,	2 00
Hardy Flowering Shrubs.—Three, in pots, of three distinct named varieties, John L. Gardner,	4 00
Cinerarias.—Six varieties, in pots, E. Sheppard,	5 00
Second, E. S. Smith,	3 00
Single plant, E. Sheppard,	3 00
Second, E. S. Smith,	2 00
Parlor Bouquets.—Pair, James O'Brien,	3 00
Second, W. J. Vass,	2 00
Cut Flowers.—Display, filling fifty bottles, Mrs. E. M. Gill,	4 00
Second, Mrs. A. D. Wood,	3 00
Basket of Flowers.—Best arranged, Mrs. E. S. Joyce,	3 00

Gratuities: —

Marshall P. Wilder, Azaleas,	4 00
W. J. Vass, Roses in pots,	3 00
W. C. Strong, Maréchal Niel Roses,	2 00
John B. Moore, Roses,	2 00
D. F. Hayes, "	2 00
Joseph Tailby, Vase of Roses,	2 00
W. J. Vass, Roses and Pansies,	2 00
John B. Moore, Pansies,	1 00
Mrs. A. D. Wood, Amaryllis,	1 00
John L. Gardner, Collection of Camellias,	2 00
Hovey & Co., Seedling Camellias,	3 00
Norton Brothers, Heaths,	2 00
" " *Spiræa Japonica*,	3 00
John L. Gardner, *Eriostemon intermedius*,	3 00
James Comley, Basket of Flowers,	5 00

E. Sheppard, Cut Flowers, ... $2 00
W. J. Vass, " " 1 00
Mrs. A. D. Wood, " " 1 00

MARCH 29.

Gratuities: —

John B. Moore, Hybrid Perpetual Roses, ... 3 00
James Comley, Tender Roses, ... 2 00
John Parker, Pelargonium, Peter Grieve, ... 1 00
Mrs. E. M. Gill, Cut Flowers, ... 1 00
Miss Cora H. Clarke, Collection of Mosses, ... 1 00

APRIL 5.

Gratuities: —

John B. Moore, Hybrid Perpetual Roses, ... 3 00
Joseph Tailby, Moss and Climbing Devoniensis Roses, . . . 1 00
E. Sheppard, Rhododendrons, ... 2 00
James Comley, Flowers, ... 2 00

APRIL 26.

Gratuities: —

John L. Gardner, very fine Seedling Polyanthus, ... 2 00
" " Camellia Derbyana, ... 2 00
Joseph Tailby, *Dendrobium densiflorum*, ... 5 00
Mrs. E. M. Gill, Cut Flowers, ... 1 00

MAY 2.

Gratuities: —

Joseph Tailby, *Dendrobium chrysotoxum*, ... 3 00
James Comley, Cut Flowers, ... 2 00
Mrs. E. M. Gill, " " 1 00
Mrs. C. N. S. Horner, Native Flowers, ... 1 00

MAY 10.

Gratuity: —

J. S. Richards, Collection of Tulips, ... 2 00

MAY 17.

Gratuities: —

Norton Brothers, *Spiræa palmata*, ... 2 00
Joseph Tailby, *Cattleya Mossiæ aurantiaca*, ... 3 00

MAY 24.

Gratuities: —

Francis B. Hayes, Collection of Rhododendrons, ... 3 00
James Comley, *Salvia argentea*, ... 1 00
W. C. Strong & Co., Foliage and Flowers, ... 1 00
W. C. Colburn, *Podophyllum peltatum*, ... 1 00

June 7.

Hunnewell Premiums.

HARDY RHODODENDRONS.—Forty-eight trusses of blooms, named varieties, Francis B. Hayes, ... $20 00
Twenty-four trusses of blooms, named varieties, John L. Gardner, 10 00
Twelve trusses of blooms, named varieties, John L. Gardner, . 8 00
Single truss of blooms, Francis B. Hayes, ... 4 00
Second, Francis B. Hayes, ... 2 00
HARDY AZALEAS.—Twenty-four named varieties, E. Sheppard, . 12 00
Six named varieties, B. G. Smith, ... 4 00
Cluster of trusses, E. Sheppard, ... 2 00
AZALEA MOLLIS.—Six trusses, of different varieties, Francis B. Hayes, 4 00

Gratuities:—

H. H. Hunnewell, Collection of Rhododendrons, ... 15 00
Francis B. Hayes, fine Collection of Rhododendrons, . . . 5 00
E. Sheppard, Rhododendrons and Iris, ... 2 00
Hovey & Co., Rhododendrons, ... 2 00
H. H. Hunnewell, Collection of Azaleas, ... 5 00
W. H. Spooner, Moss Roses, ... 1 00
E. Butler, *Cypripedium grandiflorum*, ... 3 00
" " *Clerodendron Balfouri*, ... 5 00
J. H. Woodford, Clematis, ... 3 00
John B. Moore, " 1 00
Miss E. M. Harris, Aquilegia, ... 1 00
James Nugent, Cut Flowers, ... 1 00
Mrs. A. D. Wood, " " 1 00
Mrs. E. S. Joyce, " " 1 00
Miss S. W. Story, " " 1 00
Mrs. E. M. Gill, " " 1 00
George Craft, Display of " 3 00
Mrs. E. M. Gill, Dish of " 1 00
Miss A. C. Kenrick, " 1 00
Mrs. E. S. Joyce, Basket of " 1 00
Mrs. C. N. S. Horner, Native Flowers, ... 2 00
E. H. Hitchings, " " 1 00
Miss K. A. Hill, " " 1 00

June 14.

Gratuity:—

Jackson Dawson, *Leontopodium alpinum* (Edelweiss, or Snow plant), ... 1 00

ROSE AND STRAWBERRY SHOW.

JUNE 21.

Special Prizes.

HYBRID PERPETUAL ROSES.—Twenty-four varieties, three specimens of each, a Challenge Cup, value, $150, to be held by the winner against all comers for three consecutive years, and then to be his property, absolutely, to William Gray, Jr.

Three Roses, of different varieties, John L. Gardner, silver cup, value, ... $25 00

Six Roses, of different varieties, William Gray, Jr., silver cup, value, 25 00

Twelve Roses, of different varieties, William Gray, Jr., silver cup, value, ... 25 00

Three Roses, of any one variety, John B. Moore, for Charles Lefebvre, silver cup, value, ... 25 00

Six Roses, of any one variety, John B. Moore, for Horace Vernet, silver cup, value, ... 25 00

Twelve Roses, of any one variety, William Gray, Jr., for Pierre Notting, silver cup, value, ... 25 00

Regular Prizes.

HARDY PERPETUAL ROSES.—Six new varieties sent out since 1876, the third prize to Francis B. Hayes, ... 4 00

Twenty-four distinct named varieties, two of each, William Gray, Jr., ... 15 00

Twelve distinct named varieties, Francis B. Hayes, . . . 10 00

Second, J. S. Richards, ... 7 00

Third, John B. Moore, ... 6 00

Six distinct named varieties, J. S. Richards, ... 6 00

Second, Francis B. Hayes, ... 5 00

Third, M. D. Spaulding, ... 4 00

Three distinct named varieties, the third prize to J. S. Richards, . 2 00

Flat Basket or Dish, eighteen inches by twelve inches, filled with cut blooms and foliage, John L. Gardner, ... 6 00

MOSS ROSES.—Nine named varieties, three clusters of each, John L. Gardner, ... 6 00

Second, Anthony McLaren, ... 5 00

Six named varieties, three clusters of each, William H. Spooner, 3 00

GENERAL DISPLAY, with names attached, filling 100 bottles, J. S. Richards, ... 8 00

Second, John B. Moore, ... 6 00

Third, Walker & Co., ... 4 00

STOVE AND GREENHOUSE FLOWERING PLANTS.—Six distinct named varieties, in bloom, John L. Gardner, ... 12 00

GLOXINIAS.—Six named varieties, in pots, John B. Moore, . . 6 00

SWEET WILLIAMS.—Thirty trusses, not less than six distinct varieties,
William H. Spooner, ... $3 00
Second, John B. Moore, ... 2 00
Third, James Nugent, ... 1 00
HERBACEOUS PLANTS.—Display of named species and varieties, for which no premium is offered, one bottle each, James Nugent, 5 00
CUT FLOWERS.—Display filling 150 bottles, Mrs. E. M. Gill, . . 5 00
Second, George Craft, ... 4 00
Third, James Nugent, ... 3 00
BOUQUETS.—Pair of Parlor, James O'Brien, ... 3 00
Pair of Hand, James O'Brien, ... 3 00

Gratuities:—

D. R. Beckford, Jr., Cut Roses, ... 2 00
James Bard, " " 2 00
J. S. Richards, " " 2 00
Warren Heustis, " " 1 00
Mrs. Arthur Codman, " " 1 00
M. D. Spaulding, " " 1 00
William H. Spooner, Cut Moss Roses, ... 1 00
Warren Heustis, Collection of Roses, ... 2 00
John R. Brewer, *Andromeda speciosa*, ... 1 00
E. S. Smith, New Pelargoniums, ... 2 00
Miss E. M. Harris, Sweet Williams, ... 2 00
" " " Pæonies, ... 1 00
A. McLaren, " 1 00
J. Warren Merrill, Choice Ferns, ... 3 00
John B. Moore, *Adiantum pedatum*, ... 2 00
F. W. Morandi, Native Ferns, in pots, ... 2 00
Mrs. C. N. S. Horner, " " 1 00
D. R. Beckford, Jr., " " 1 00
Francis B. Hayes, Cut Flowers, ... 3 00
Miss S. W. Story, " " 2 00
E. Sheppard, " " 2 00
Miss L. P. Weston, " " 1 00
Miss A. C. Kenrick, " " 1 00
W. J. Vass, " " 1 00
Miss A. C. Wheeler, Basket of Flowers, ... 1 00
Mrs. E. S. Joyce, " " 1 00

JUNE 28.

Gratuities:—

John B. Moore, Collection of Roses, ... 2 00
" " " Sweet Williams, ... 1 00
Mrs. E. M. Gill, Cut Flowers, ... 2 00
Mrs. E. S. Joyce, " " 1 00
Mrs. C. N. S. Horner, Native Plants, ... 2 00

July 5.

Gratuities:—

F. Parkman, Japan Iris,	$1 00
B. D. Hill, " "	1 00
James Nugent, Seedling Picotees,	1 00
Mrs. A. D. Wood, Cut Flowers,	2 00
Mrs. E. M. Gill, " "	1 00
Miss E. M. Harris, " "	1 00
Mrs. C. N. S. Horner, Native Flowers,	1 00
E. H. Hitchings, " "	1 00

July 12.

Gratuities:—

John B. Moore, Gloxinias, Hollyhocks, etc.,	2 00
E. Sheppard, Pelargoniums and Hollyhocks,	1 00
J. A. Black, Hollyhocks,	1 00
Francis B. Hayes, Rhododendrons,	2 00
Joseph Tailby, *Lælia purpurata*,	2 00
John Robinson, *Tamarix Chinensis*,	1 00
James Nugent, Seedling Picotees,	2 00
Mrs. E. M. Gill, Cut Flowers,	2 00
Miss S. W. Story, " "	1 00
Mrs. A. D. Wood, " "	1 00
E. H. Hitchings, Native Flowers,	1 00

July 19.

Gratuities:—

Francis B. Hayes, Hybrid Perpetual Roses,	2 00
James Comley, Roses,	1 00
James Nugent, Picotees, Roses, etc.,	1 00
John B. Moore, Hollyhocks,	1 00
Hovey & Co., Seedling Lily, *Hoveyi*,	2 00
" " " *Cattleya Mendelii*,	1 00
Mrs. E. M. Gill, Cut Flowers,	2 00
Mrs. E. S. Joyce, " "	1 00
Miss E. M. Harris, " "	1 00
George Craft, " "	1 00
E. H. Hitchings, Native Flowers,	1 00

July 26.

Gratuities:—

Francis B. Hayes, Hybrid Perpetual Roses,	2 00
James Comley, Roses,	1 00
Mrs. E. M. Gill, Cut Flowers,	2 00
George Craft, " "	2 00
Miss S. W. Story, " "	1 00
James Nugent, " "	1 00

Mrs. C. N. S. Horner, Native Flowers,	$2 00
E. H. Hitchings, " "	1 00
Miss E. M. Harris, Design of Native Flowers,	1 00

August 2.

Gratuities:—

Francis B. Hayes, Hybrid Perpetual Roses,	1 00
James Comley, Roses,	1 00
John B. Moore, fine Phloxes,	2 00
E. Sheppard, Phloxes,	1 00
" " Petunias,	1 00
Mrs. A. D. Wood, Cut Flowers,	3 00
Mrs. E. M. Gill, " "	2 00
George Craft, " "	2 00
Mrs. E. S. Joyce, " "	1 00
Miss E. M. Harris, " "	1 00
James Nugent, " "	1 00
Miss S. W. Story, " "	1 00
E. H. Hitchings, rare Native Flowers,	2 00
Mrs. C. N. S. Horner, " "	2 00

August 9.

Gratuities:—

John L. Gardner, Achimenes,	5 00
Francis B. Hayes, Hybrid Perpetual Roses,	1 00
James Comley, Roses,	1 00
John B. Moore, Roses and Phlox,	2 00
James Cartwright, *Oncidium crispum*,	2 00
Joseph Tailby, cut flowers of *Eucharis Amazonica*,	2 00
A. P. Calder, *Nymphæa odorata*, var. *rosea*,	1 00
E. Sheppard, *Lilium auratum*,	2 00
" " Verbenas,	1 00
M. H. Merriam, Gladioli,	1 00
Mrs. A. D. Wood, Cut Flowers,	3 00
Mrs. E. M. Gill, " "	2 00
George Craft, " "	2 00
James Nugent, " "	1 00
Mrs. E. S. Joyce, " "	1 00
Miss S. W. Story, " "	1 00
Mrs. C. N. S. Horner, Native "	2 00
E. H. Hitchings, " " from the White Mountains,	1 00

August 16.

Gratuities:—

L. H. Foster, Collection of Verbenas,	1 00
Herbert Gleason, Gladioli,	1 00
James Cartwright, "	1 00

M. H. Merriam, Roses, ... $1 00
Francis B. Hayes, Roses and Dahlias, ... 2 00
John B. Moore, Roses and Phloxes, ... 1 00
James Cartwright, *Lilium auratum*, ... 1 00
Mrs. E. M. Gill, Cut Flowers, ... 3 00
Mrs. A. D. Wood, " " 2 00
George Craft, " " 2 00
Mrs. E. S. Joyce, " " 1 00
James Nugent, " " 1 00
E. H. Hitchings, Native Flowers, ... 1 00
W. H. Spooner, Gladioli and Tropæolums, ... 1 00

AUGUST 23.

Gratuities:—

George Craft, Gladioli, ... 2 00
James Cartwright, " 2 00
Herbert Gleason, " 2 00
M. H. Merriam, " 1 00
W. H. Spooner, " and Tropæolums, ... 2 00
Francis B. Hayes, " and Roses, ... 2 00
James Comley, Roses and Petunias, ... 1 00
E. Sheppard, Asters, ... 1 00
Mrs. E. M. Gill, Cut Flowers, ... 3 00
James Nugent, " " 2 00
George Craft, " " 2 00
Mrs. E. S. Joyce, " " 1 00
Miss S. W. Story, " " 1 00
Miss E. M. Harris, Design of Flowers, ... 1 00
R. B. Cummings, Native Flowers, ... 1 00

AUGUST 30.

Gratuities:—

James Cartwright, fine Gladioli, ... 2 00
George Craft, " " 2 00
Herbert Gleason, " " 2 00
M. H. Merriam, " " 1 00
Francis B. Hayes, " " and Roses, ... 2 00
John B. Moore, " " " 1 00
W. H. Spooner, " " Tropæolums, ... 2 00
Andrew Wellington, *Clianthus Dampieri*, ... 1 00
Francis B. Hayes, fine new Dahlias, ... 1 00
Miss S. W. Story, Collection of Lilies, ... 2 00
Miss E. M. Harris, Wreath of Native Flowers, ... 1 00
Mrs. A. D. Wood, Cut Flowers, ... 3 00
Mrs. E. M. Gill, " " 2 00
James Nugent, " " 2 00
George Craft, " " 2 00
Mrs. E. S. Joyce, " " 1 00
Mrs. L. P. Weston, " " 1 00

ANNUAL EXHIBITION.

SEPTEMBER 9, 10, 11, and 12.

GREENHOUSE PLANTS.—Twelve greenhouse and stove plants of different varieties, H. H. Hunnewell, ... $30 00
Second, S. R. Payson, ... 25 00
SPECIMEN PLANT.—Not variegated, for which no special prize is offered, H. H. Hunnewell, ... 5 00
Second, Hovey & Co., ... 4 00
SPECIMEN FLOWERING PLANT.—S. R. Payson, ... 5 00
Second, S. R. Payson, ... 4 00
VARIEGATED LEAVED PLANTS.—Six varieties not offered in the collection of greenhouse plants, William Gray, Jr., . . . 12 00
Second, S. R. Payson, ... 10 00
Single specimen, not offered in any collection, H. H. Hunnewell, . 6 00
CALADIUMS.—Six varieties, William Gray, Jr., ... 6 00
Second, William Gray, Jr., ... 5 00
FERNS.—Six named varieties, Hovey & Co., ... 8 00
ADIANTUMS.—Six varieties, S. R. Payson, ... 7 00
DRACÆNAS —Six named varieties, S. R. Payson, ... 8 00
Second, Hovey & Co., ... 6 00
PALMS.—Single specimen, Hovey & Co., ... 5 00
AGAVES.—Six distinct varieties, Hovey & Co., ... 6 00
Second, John C. Hovey, ... 4 00
CACTI.—Twelve species and varieties, John C. Hovey, . . . 3 00
Second, Hovey & Co., ... 2 00
SUCCULENTS.—Collection (other than Agaves and Cacti) of twelve species and varieties, John C. Hovey, ... 4 00
Second, Hovey & Co., ... 3 00
BEGONIAS (Tuberous rooted).—Six distinct varieties, Carl Schaffer, 5 00
PETUNIAS.—Fifty bottles, each containing three blooms, with foliage, George Craft, ... 4 00
Second, Mrs. William Latham, ... 3 00
GLADIOLI.—Twenty named varieties, in spikes, A. McLaren, . . 8 00
Second, George Craft, ... 6 00
Third, John B. Moore, ... 4 00
Six named varieties, in spikes, William H. Spooner, . . . 3 00
Second, William H. Spooner, ... 2 00
Best display, and best kept during the exhibition, filling 100 bottles, James Cartwright, ... 6 00
Second, George Craft, ... 4 00
ASTERS. — Thirty flowers, not less than ten varieties, John L. Gardner, ... 5 00
Second, Parker Barnes, ... 4 00
Third, John L. Gardner, ... 3 00
Fifteen flowers, not less than six varieties, Mrs. E. M. Gill, . . 3 00
Second, Parker Barnes, ... 2 00

Pompon Asters. — Sixty blooms, not less than six varieties, in bunches of three of the same variety, James Nugent,	$4 00
Lilies. — Display of *Lilium lancifolium*, cut flowers, Hovey & Co.,	3 00
Second, Mrs. E. M. Gill,	2 00
Verbenas. — Fifty bottles, E. Sheppard,	3 00
Second, L. H. Foster,	2 00
Double Zinnias. — Twenty flowers, not less than six varieties, James Nugent,	4 00
Second, Mrs. William Latham,	3 00
Third, George Craft,	2 00
Ten flowers, not less than four varieties, the second prize to James Nugent,	2 00
Third, Benjamin G. Smith,	1 00
Dahlias. — Twelve named varieties, Samuel G. Stone,	6 00
Second, Francis B. Hayes,	5 00
Third, Samuel G. Stone,	4 00
Six named varieties, James Nugent,	4 00
Second, Hovey & Co.,	3 00
Third, Samuel G. Stone,	2 00
Three named varieties, John Parker,	3 00
Second, John B. Moore,	2 00
Third, Samuel G. Stone,	1 00
Single Flower, James Nugent,	2 00
Second, Samuel G. Stone,	1 00
Liliputian Dahlias.—Display filling fifty bottles, J. F. Marble,	4 00
Second, Samuel G. Stone,	3 00
Parlor Bouquets.—Pair on Wednesday, Hermann Grundel,	3 00
Pair on Thursday, Hermann Grundel,	3 00
Hand Bouquets.—Pair on Wednesday, Hermann Grundel,	3 00
Second, Mrs. E. S. Joyce,	2 00
Pair on Thursday, Hermann Grundel,	3 00
Second, Mrs. E. S. Joyce,	2 00
Cut Flowers.—Display filling 150 bottles, Mrs. E. M. Gill,	18 00
Second, Mrs. A. D. Wood,	16 00
Third, James Nugent,	14 00
Basket of Flowers.—Best arranged, and best kept through the exhibition, Miss S. W. Story,	5 00
Table Design.—Best kept through the exhibition, to be arranged without fruit, and not to exceed four feet in height, Mrs. E. S. Joyce,	5 00
Vase of Flowers.—Best arranged and best kept through the exhibition, Francis B. Hayes,	5 00
Second, Francis B. Hayes,	4 00

Hunnewell Premiums.

Hardy Coniferæ.—Twelve named varieties, the second prize to J. W. Manning,	6 00

Gratuities: —

Hovey & Co., Collection of Plants,	$20 00
William J. Vass, " "	8 00
John B. Moore, " "	8 00
Hovey & Co., Caladiums,	4 00
John B. Moore, "	3 00
E. Sheppard, "	2 00
Hovey & Co., new Coleus,	3 00
E. Sheppard, " "	5 00
Mrs. E. M. Gill, "	2 00
D. F. Hayes, *Cereus*,	2 00
John C. Hovey, Succulents and Cacti,	3 00
Edward Butler, Seedling Dracænas,	5 00
F. L. Harris, " "	6 00
Carl Schaffer, " Begonias,	3 00
John L. Gardner, two fine *Eurya latifolia marginata*,	4 00
Mrs. Charles Stiles, *Vallota purpurea*,	1 00
W. C. Strong & Co., Tree Ferns,	10 00
J. Warren Merrill, rare Ferns,	5 00
B. G. Smith, Lilies,	2 00
Miss S. W. Story, Lilies,	1 00
John B. Moore, Gladioli,	1 00
E. Sheppard, "	2 00
M. H. Merriam, "	2 00
Hermann Grundel, Balsams,	1 00
William H. Spooner, Tropæolums, in variety,	3 00
A. H. Dunlap & Son, Japan Pinks,	2 00
Parker Barnes, fine Dahlias,	1 00
John B. Moore, Roses and other Flowers,	3 00
George Craft, Cut Flowers,	3 00
W. J. Vass, " "	2 00
W. C. Strong & Co., Display of Flowers,	3 00
Mrs. E. M. Gill, Basket of Flowers, new design,	3 00
Miss E. M. Harris, two Designs,	3 00
" " " Basket of Flowers,	1 00
" " " Design in Wild Flowers,	2 00
R. B. Cummings, Bouquets of Wild Flowers,	1 00
E. H. Hitchings, *Botrychiums*,	1 00
C. E. Richardson, Native Fungi,	2 00

SEPTEMBER 20.

Gratuities:—

James Nugent, Dahlias and other Flowers,	2 00
Francis B. Hayes, Dahlias and Roses,	1 00
Samuel G. Stone, " "	3 00
James Comley, Tea Roses,	2 00
Mrs. A. D. Wood, Gladioli,	1 00

George Craft, Helianthus, in variety, ... $1 00
E. H. Hitchings, Native Flowers, ... 2 00

SEPTEMBER 27.

Gratuities :—

Samuel G. Stone, Dahlias, ... 3 00
George Craft, Gladioli, ... 2 00
Mrs. E. M. Gill, *Amaryllis Belladonna*, ... 1 00
W. H. Spooner, *Tritoma Uvaria*, ... 1 00
Mrs. E. M. Gill, Cut Flowers, ... 2 00
Miss S. W. Story, " " 1 00
Mrs. C. N. S. Horner, Native Flowers, ... 2 00
E. H. Hitchings, " " 1 00
Mrs. C. N. S. Horner, Fungi, ... 1 00

OCTOBER 4.

Gratuities :—

Samuel G. Stone, Dahlias, ... 3 00
James Comley, Roses, ... 1 00
Hovey & Co., *Oncidium Rogersii*, ... 3 00
William H. Spooner, *Tritoma Uvaria*, ... 1 00
Mrs. E. M. Gill, Cut Flowers, ... 2 00
George Craft, " " 1 00
Miss S. W. Story, " " 1 00
Mrs. E. S. Joyce, " " 1 00
Francis B. Hayes, " " 1 00
Mrs. C. N. S. Horner, Wild Flowers, ... 2 00

OCTOBER 11.

Gratuities :—

Samuel G. Stone, Dahlias, ... 3 00
John L. Gardner, very fine Dahlias, ... 1 00
Francis B. Hayes, choice Clematis, ... 1 00
Mrs. E. M. Gill, Cut Flowers, ... 2 00
Mrs. A. D. Wood, " " 2 00
Mrs. E. S. Joyce, " " 1 00

OCTOBER 18.

Gratuities :—

Samuel G. Stone, Dahlias, ... 3 00
John B. Moore, Phloxes, ... 1 00
M. H. Merriam, *Lapageria alba*, ... 1 00
Mrs. E. M. Gill, Cut Flowers, ... 2 00
George Craft, " " 2 00
Miss E. M. Harris, Autumn Leaves, ... 1 00

OCTOBER 25.

Gratuities :—

Samuel G. Stone, Dahlias, ... 1 00
William H. Spooner, *Tritoma Uvaria*, ... 1 00

Miss E. S. Joyce, Vase of Flowers, ... $1 00
George Craft, Cut Flowers, ... 1 00
Mrs. E. M. Gill, " " 1 00

CHRYSANTHEMUM SHOW.

NOVEMBER 12.

CHRYSANTHEMUMS.—Six distinct named Large Flowered varieties, H. L. Higginson, ... 8 00
Second, John L. Gardner, ... 6 00
Six distinct named Pompons, H. L. Higginson, ... 8 00
Second, John L. Gardner, ... 6 00
Four named Liliputians, H. L. Higginson, ... 4 00
Specimen Plant, Large Flowered, H. L. Higginson, . . . 4 00
Second, John L. Gardner, ... 3 00
Third, John L. Gardner, ... 2 00
Specimen Plant, Pompon Flowered, H. L. Higginson, . . . 4 00
Four named Japanese varieties, John L. Gardner, . . . 6 00
Second, John L. Gardner, ... 4 00
Twelve named Large Flowered varieties, cut specimens, John L. Gardner, ... 3 00
General display of named and unnamed varieties, cut specimens, Joseph Clark, ... 5 00
Second, E. Sheppard, ... 4 00
Third, Mrs. E. M. Gill, ... 3 00
ORCHIDS.—Three named varieties, in bloom, James Cartwright, . 6 00
BASKET OF FLOWERS.—Mrs. E. M. Gill, ... 3 00
HAND BOUQUETS.—Pair, James Nugent, ... 3 00
Second, Mrs. E. S. Joyce, ... 2 00
TABLE DESIGN.—Mrs. E. S. Joyce, ... 3 00

Gratuities:—

James Comley, Chrysanthemum Plants, ... 5 00
H. L. Higginson, " " 5 00
John L. Gardner, " Golden Dragon, ... 1 00
James Nugent, Chrysanthemums, ... 2 00
E. Sheppard, " 2 00
Mrs. E. M. Gill, " 2 00
John L. Gardner, *Sonerila margaritacea*, ... 2 00
James Cartwright, Cyclamen Plants, ... 3 00
Miss E. H. Craft, Design, ... 3 00
Miss S. W. Story, Vase of Flowers, ... 2 00
James Comley, Cut Flowers, ... 5 00
Mrs. A. D. Wood, " " 4 00
John B. Moore, " " 3 00
Mrs. C. N. S. Horner, Native Plants, ... 3 00
E. H. Hitchings, *Botrychiums*, ... 1 00

The Committee have awarded Medals and Certificates of Merit, as follows: —

Silver Medals.

May 24. Francis B. Hayes, Collection of Rhododendrons.

August 9. Joseph Tailby, *Eucharis Amazonica.*

Annual Exhibition, September 9–12. James Comley, *Polygonum Japonicum.*

F. L. Harris, Seedling Dracæna, Wauban.

Bronze Medal.

May 17. Francis B. Hayes, Collection of *Azalea mollis.*

First Class Certificates of Merit.

March 19. R. Farquhar, *Lilium Hokakio.*

March 29. Joseph Tailby, Collection of Madame la Baronne de Rothchild Roses.

April 19. Joseph Tailby, Mabel Morrison Rose.

June 7. John L. Gardner, Seedling Amaryllis.

" Hovey & Co., Seedling Cacti.

" Francis B. Hayes, *Rhododendron Torlonianum.*

June 14. B. T. Wells, *Lilium Chotuso.*

Rose and Strawberry Show, June 21. William A. Bock, Carnation, Charles Sumner.

June 28. B. T. Wells, *Lilium Hakura.*

July 5. " " " new Lilies.

" Francis B. Hayes, *Lilium Beni.*

" A. G. Brown, *Lilium Sai.*

July 12. Hermann Grundel, Seedling Picotees.

July 19. John C. Hovey, Seedling Japan Hollyhocks.

August 2. Hovey & Co., *Lilium Batemanæ.*

August 9. Francis B. Hayes, *Lilium Yama.*

August 16. James F. C. Hyde, Seedling Gladiolus, Hyde's White.

Annual Exhibition, September 9–12. B. K. Bliss & Sons, *Gladiolus purpureo-auratus.*

W. H. Spooner, Seedling Gladiolus, Garnet.

Hovey & Co., Agave, Victoria Regina.

Joseph Tailby, Carnation, Grace Wilder.

Hovey & Co., Begonia, Comtesse de Thelusson.

September 27. James Comley, Seedling Gladiolus, Madam Maria Carey.

October 11. Joseph Tailby, Seedling Pinks.

Prospective Prizes.

December 6. P. B. Hovey, Seedling Lily, *Hoveyi*, . . . $40 00

December 27. C. M. Hovey, Seedling Camellia, Mrs. Anne Marie Hovey, ... 60 00

REPORT

OF THE

COMMITTEE ON FRUITS,

FOR THE YEAR 1879.

By JOHN B. MOORE, Chairman.

This section of our country has a reputation for sudden and great variations in the temperature of the weather, and perhaps justly. We have, during the spring months, raw easterly winds, that chill one through; in the summer, hot south, or southwest winds, with the thermometer in the nineties; and in the winter, deep snows, piercing cold winds, and sometimes the thermometer a number of degrees below zero.

The year 1879 has not been an exception to the general rule. The more marked features of the season, have been a rather cold and late spring; June and July fairly warm, and August wet, with violent storms of wind and rain, and, in some localities, hail, doing much damage to fruits, flowers and vegetables. July 16, we had hail, which broke glass in greenhouses. September was very warm and pleasant—more like summer than autumn, until the mornings of the 26th and 27th, when there were heavy frosts in some localities. After that we had warm summer weather, which continued until about the 24th of October, when there was a very hard frost, killing all tender plants that had escaped the previous ones.

On the 3d of November we had a snow storm, followed by quite cold weather for nearly a week, on one morning of which the thermometer marked only 8° above zero, at Concord; and on the 22d day of the same month we had another snow storm, and the thermometer fell to zero, at the same place.

It is said that seed time and harvest never fail, and we may here

assert the same in regard to the variations of New England weather, and the difficulty is that we cannot foresee these changes so as to be able to meet them. If the signal service could inform us every morning exactly what weather we should have during the coming day, we could then decide knowingly, even in such little things as the desirability of taking an overcoat or an umbrella; as it is, we only have to wait until things develop, and freeze or roast, as the weather may happen to be cold or hot.

Extremes usually have their compensations, and those of our climate may all be for the best, taking into consideration its effect on men and women brought up under such circumstances. It is generally admitted that they have a greater degree of energy and will to accomplish, than persons who have been bred in a milder climate.

In some countries where the soil is rich and the climate hot and enervating, nearly everything planted grows luxuriantly, and with hardly any care develops fine plants and fruits, and requires so little exertion on the part of the owner, mentally and physically, as to unfit him for the duties of a sharp, practical cultivator under different circumstances. Perhaps it would be better to say that our soil and climate compel a person to use all the skill and ingenuity possible to succeed in growing even such hardy plants, fruits, and vegetables as we find on our tables.

But the same state of things develops a true New England man, — we will not say the best man, although we may have the same opinion about that matter that an old English physician, Dr. Boteler (as recorded by Izaak Walton), had in regard to the strawberry, "doubtless, God could have made a better fruit, but, doubtless, God never did."

An eminent citizen of Massachusetts, who often visits these rooms, has said that "success is a duty." We have not done our very best yet, and we can do much more in various ways. We can introduce new varieties from abroad; we can raise new seedlings; we can give better cultivation; we can prepare and adapt our soils and manures for particular crops. We can have a free interchange of knowledge, methods, and our own individual experiences in this hall, and it would be the beginning of a mutual improvement, that would lay the sure foundation for that skill in horticulture which insures success.

The Society adopted a prize list, for the year now closing, quite

different from that of previous years. The plan was to have five different prize days during the year, doing away entirely with the weekly exhibitions for prizes, but still having shows on Saturdays, at which gratuities might be awarded for the best specimens of fruit. Now the fact is, that there are many varieties of fruits, flowers, and vegetables, whose time of maturity or perfection is not covered by the five stated prize days, and, therefore, they are cut off from premiums. Your Committee are of the opinion that they should have their prize days as well as the others, and recommend such a plan to the favorable consideration of the Society. This course would not require any larger appropriation of money, but that the greater part of it should be awarded in prizes rather than in gratuities.

With these remarks, the Committee will call the Society's attention to the general displays, and to the prominent new varieties, and seedling fruits, that have come before them the present year.

The exhibition of strawberries was not as good or as large as it has been in some previous years, partly from combining it with the Rose Show, whereas it is not in perfection at the same time as the rose. Other small fruits were not shown as abundantly as in former years for the reason, as we have before stated, that no prizes were offered for them.

At the annual exhibition in September we had a large and fine display of fruit, more particularly of pears, which were in great profusion, and of fine appearance. There was a falling off in the show of apples, but some quite fine specimens were presented. Other fruits were shown in about the usual quantities. The Committee are of the opinion that it would have been better to have had this exhibition one week later in the season. This year has been a remarkable one for pears; almost every tree has been loaded, and the fruit has been large, smooth, and fine; and, notwithstanding the large number of trees destroyed by the pear blight in this vicinity, more pears have been offered in Boston market than could be sold at fair prices. Peaches were hardly equal to those of last year, although there were some fine specimens shown at various times. But in plums there has been a decided improvement, both in quantity and quality, and the prospect is that they may be more easily grown and abundant hereafter.

Of native grapes, we may say that, while there has been a good show of some of the quite hardy, early varieties, there has been a

marked falling off in the quantity, beauty, and size of the bunches of many other varieties, and particularly so with the hybrids. The frosts on the mornings of the 24th and 25th of September injured or spoiled the crop in many places, thereby cutting off some of the later varieties from exhibition at our shows. The exhibitions of foreign grapes have not increased, either in quantity or quality; the great improvement made in our native grapes may have to some extent displaced them, and the abundance of grapes of the foreign varieties, yearly sent to our market from California, may have had an influence in the same direction.

The appropriation for the year 1879, was $950.00; the amount awarded in prizes and gratuities, was $752.00, leaving a balance of $198.00.

The Committee have also awarded one Silver Medal for Clapp's Seedling Pear, No. 64, and one First Class Certificate of Merit for a Seedling Grape, exhibited by Horace Eaton.

The present year there have been offered, for the inspection of the Committee, several new fruits and many new seedlings. The Secretary of the Society, who is an expert in pomology, very kindly consented to make descriptions of many of these varieties. These are approved by the Committee, and from them we have selected descriptions of the most promising kinds examined, which are appended to this report. The list of prizes and gratuities awarded is also annexed.

All of which is respectfully submitted,

JOHN B. MOORE,
BENJAMIN G. SMITH,
JACOB W. MANNING,
E. W. WOOD,
P. B. HOVEY,
} *Committee on Fruits.*

NOTES ON NEW FRUITS.

By Robert Manning, Secretary.

Strawberries. *Carrie Ross.*—A seedling from Charles Garfield, shown by him June 14th; of bright red color, and good quality.

Lone Star.—A seedling from Mr. Garfield, shown at the same time. It resembles Triomphe de Gand in appearance, but is very sour and of poor quality.

Sharpless.—We are indebted to Hon. Marshall P. Wilder for the first opportunity to examine this new variety, which has been more highly praised than any other of recent introduction. The specimens were very large but otherwise they did not come up to the descriptions which have been published, and we therefore forbear to say anything more of it until another season shall afford opportunity for further examination. It was shown on the 28th of June, when Mr. Wilder also exhibited the following described seedlings.

Hero.—Very large, conical, somewhat irregular, flattened on the sides; dark crimson; flesh, pale red, not very juicy.

Seedling B.—Large, conical, pretty regular, sometimes a little flattened on the sides; crimson, colored all round. Flesh, pale red, streaked with lighter red, solid, juicy, with a peculiar flavor.

Seedling D.—Large, conical, frequently wedge shaped; crimson; flesh, pale red, juicy, solid, with rather a harsh acid.

Seedling B was thought the best of these three, and Hero the poorest.

Pears. *Clapp's No. 64*, of the crop of 1878, was exhibited April 19. This was described in the reports of the Fruit Committee for 1875, 1876, and 1878. The specimens were of good size, with a red cheek and quite handsome, and though it is only second rate in quality the Committee are still of the opinion expressed in the above-mentioned reports, that it may be valuable as a very late keeper.

Lancaster.—A seedling from T. S. Lancaster, of Gloucester, presented by David W. Low. Above medium size; oblong obovate pyriform; pale yellow, with faint russet dots, and sometimes the sunny cheek tinged and spotted with red. Flesh rather coarse, juicy, buttery, not high flavored, and will not rank above "good." In general aspect resembles the Bartlett, and is very probably a seedling from it.

Dudley.—A seedling from Boston Highlands, bearing the name

of the originator, who has removed to Lexington, taking the original tree with him. The specimens were grown by John L. D'Wolf, and presented by him. Large; globular obtuse pyriform; skin dull yellow, thickly dotted with large russet dots, and clouded with the same. Flesh very melting, juicy, and rich; flavor resembling that of the Jean de Witt. Will rank as "very good" if not "best." In external appearance resembles Beurre Diel.

Merriam.—Specimens of this valuable market variety from the original tree were presented by Henry F. Coe, of West Roxbury, which is still vigorous, though it measured eight inches in diameter, fifty years ago. It bore six barrels of fruit in 1879.

Grapes. *Seedling* from the Concord, raised by the late Calvin Eaton, of Concord, N. H. Exhibited by Horace Eaton, of Quincy, Mass., October 4. Bunch very large — of four exhibited the largest was shouldered and weighed eighteen and one-half ounces— compact. Berries very large, round, black, covered with a thick blue bloom. The stem pulls out white, like the Concord. The general appearance of the bunch and berry strongly resembles that of Moore's Early. The skin is quite as thick as that of the Concord. Very juicy, with some—but not hard—pulp. Not as sweet as the Concord, but has less of the native odor. The berries were not all quite ripe.

Niagara.—From J. S. Woodward, of Lockport, N. Y., October 11. Bunch large, compact, sometimes with a small shoulder, but generally not shouldered. Berries of medium size, compressing each other so as to give the half next the pedicel a somewhat pyramidal shape. Color, pale green, in exposed situations taking an amber tinge. Juicy and very sweet, with a moderate amount of pulp, which is not hard. It has a strong native odor, which is little noticed by the taste. The berries adhere well to the bunch. It was originated by Hoag & Clark, of Lockport, N. Y., and is a cross between the Concord and Cassady—both pure natives.

Prentiss.—From T. S. Hubbard, Fredonia, N. Y., December 6. Bunch small, very compact — so much so as to compress the berries into a pointed form next the pedicel. Berries nearly round when not crowded. Color, light green, changing to amber, like the White Chasselas at full maturity. Bloom thin. Sweet and good with Frontignan flavor. Not much pulp. Skin thick, indicating a good keeper. Seeds pretty large. Of four bunches received one shed its berries freely; the others held on well, but it should be remembered that this was late in the season.

PRIZES AND GRATUITIES AWARDED FOR FRUITS.

AZALEA AND ROSE EXHIBITION.

March 19.

Winter Pears.—Any variety, Warren Fenno, Josephine de Malines,	$3 00
Second, J. V. Wellington, Winter Nelis, ...	2 00
Winter Apples.—Any variety, W. T. Hall, Northern Spy, . .	3 00
Second, Samuel Hartwell, Hunt Russet, ...	2 00

Gratuities:—

Asa Clement, Collection of Apples, ...	3 00
Samuel Hartwell, Collection of Apples, ...	1 00
Lemuel Clapp, Seedling Pear, No. 64, ...	1 00
Robert Manning, Bergamot Parthenay Pears, ...	1 00

March 29.

Gratuity:—

Benjamin P. Ware, English Golden Russet Apples, . . .	1 00

June 7.

Gratuity:—

Charles Garfield, Triomphe de Gand Strawberries, grown in a cold frame, ...	1 00

June 14.

Gratuities:—

Charles Garfield, Triomphe de Gand Strawberries, and Seedlings Carrie Ross and Lone Star, ...	2 00
M. W. Chadbourne, Charles Downing Strawberries, . . .	1 00
Aaron D. Capen, " " " . . .	1 00

ROSE AND STRAWBERRY SHOW.

June 21.

Strawberries.—Four quarts of any variety, M. W. Chadbourne, Jucunda, ...	8 00
Second, Charles Garfield, Triomphe de Gand, ...	6 00
d eorge Hill, Jucunda, ...	5 00

Fifty berries, of any variety, the second prize to L. W. Weston, Charles Downing, ... $3 00
Two quarts Belle, the second prize to George Hill, . . . 2 00
Charles Downing, John B. Moore, ... 3 00
Second, Marshall P. Wilder, ... 2 00
Duchess, John B. Moore, ... 3 00
Hervey Davis, John B. Moore, ... 3 00
Second, Francis B. Hayes, ... 2 00
Lady of the Lake, George Hill, ... 3 00
President Wilder, Benjamin G. Smith, ... 3 00
Seth Boyden, Horace Eaton, ... 3 00
Second, Marshall P. Wilder, ... 2 00
Triomphe de Gand, Charles Garfield, ... 3 00
Second, Francis B. Hayes, ... 2 00
Cherries.—Two quarts of any variety, Isaac P. Langworthy, Knight's Early Black, ... 3 00
Second, C. E. Grant, Black Heart, ... 2 00
Grapes.—Two bunches of any variety, H. S. Mansfield, Black Hamburg, ... 4 00
Second, Winter Brothers, White Frontignan, ... 3 00
Third, H. S. Mansfield, Red Chasselas, ... 2 00

June 28.

Gratuities:—

Francis B. Hayes, Collection of Strawberries, ... 4 00
Marshall P. Wilder, " " " 3 00
John B. Moore, " " " 3 00
C. E. Grant, Collection of six varieties of Cherries, . . . 4 00
T. S. Lockwood, Coe's Transparent Cherries, ... 1 00

July 5.

Gratuities:—

C. E. Grant, three varieties of Cherries, ... 2 00
James Nugent, " " " " 1 00
T. S. Lockwood, Coe's Transparent Cherries, ... 1 00

July 12.

Gratuities:—

C. E. Grant, Collection, ... 2 00
B. G. Smith, " 2 00
Mrs. E. M. Gill, Versaillaise Currants, ... 1 00
Warren Fenno, Norfolk Cherries (Seedling), ... 1 00
Thomas S. Lockwood, Downer Cherries, ... 1 00

July 19.

Gratuities:—

Horace Eaton, Downing Gooseberries, ... 1 00
John B. Moore, Dana's Transparent Currants, ... 1 00
Mrs. E. M. Gill, Currants, ... 1 00

JULY 26.

Gratuities:—

Hovey & Co., Pears,	$1 00
Robert Manning, Dana's Transparent Currants,	1 00
James Nugent, Dorchester Blackberries,	1 00
Charles Garfield, Foreign Gooseberries,	1 00
Warren Fenno, " "	1 00
Benjamin G. Smith, Collection,	1 00

AUGUST 2.

Gratuities:—

James Nugent, Dorchester Blackberries,	1 00
Horace Eaton, Doyenne d' Été Pears,	1 00
Benjamin G. Smith, Collection,	1 00

AUGUST 9.

Gratuities:—

Marshall P. Wilder, Collection of Pears,	2 00
Warren Fenno, Beurre Giffard Pears,	1 00
Benjamin G. Smith, " " "	1 00
Horace Eaton, Early Beatrice Peaches,	1 00
C. E. Grant, Peaches,	1 00
John Fillebrown, Large Yellow Bough Apples,	1 00
Benjamin G. Smith, Williams Apples,	1 00
Horace Eaton, Red Astrachan "	1 00
Benjamin G. Smith, Whitesmith Gooseberries,	1 00
Samuel Hartwell, Collection,	1 00

AUGUST 16.

Gratuities:—

Horace Eaton, Peaches and Pears,	1 00
George Frost, Suprême de Quimper Pears,	1 00
Robert Manning, Bloodgood Pears,	1 00
William T. Hall, Beurre Giffard Pears,	1 00
Warren Fenno, Collection of Pears,	1 00
J. T. Foster, Red Astrachan Apples,	1 00
J. Gardner, Washington Plums,	1 00
H. V. Draper, Peach "	1 00
Benjamin G. Smith, Bang-up Gooseberries,	1 00

AUGUST 23.

Gratuities:—

C. D. Kingman, Foreign Grapes,	1 00
Edwin A. Hall, Plums,	1 00
Charles Bird, Collection of Pears,	1 00
Warren Fenno, " "	1 00
Mrs. E. M. Gill, Clapp's Favorite Pears,	1 00

John C. Park, Rostiezer Pears,	$1 00
Francis B. Hayes, Pears,	1 00
Benjamin G. Smith, Apples and Pears,	1 00
John Cummings, Collection of Apples,	1 00
Warren Heustis, Large Yellow Bough Apples,	1 00
John Fillebrown, Williams Apples,	1 00

AUGUST 30.

Gratuities:—

C. D. Kingman, Collection of Foreign Grapes,	3 00
C. E. Grant, White Chasselas Grapes,	1 00
John B. Moore, Moore's Early Grapes,	1 00
C. H. Wall, Champion Grapes,	1 00
C. N. Brackett, Pumpkin Sweet Apples,	1 00
L. W. Weston, Foundling Apples,	1 00
W. T. Hall, Williams Apples,	1 00
John Cummings, Apples and Pears,	1 00
John McClure, Rostiezer Pears,	1 00
A. S. McIntosh, Tyson "	1 00
R. Manning, Pears,	1 00
Walker & Co., Collection of Pears,	2 00
Mrs. H. V. Draper, Plums,	1 00
Francis B. Hayes, Collection,	1 00
Benjamin G. Smith, "	1 00

ANNUAL EXHIBITION.

SEPTEMBER 9, 10, 11, and 12.

APPLES.—Baldwin, M. W. Chadbourne,	3 00
Second, John Cummings,	2 00
Danvers Winter Sweet, Benjamin G. Smith,	3 00
Second, C. C. Shaw,	2 00
Dutch Codlin, Benjamin G. Smith,	3 00
Second, A. S. McIntosh,	2 00
Fall Orange, or Holden Pippin, Samuel Hartwell,	3 00
Second, C. N. Brackett,	2 00
Fameuse, Edwin Fletcher,	3 00
Foundling, Warren Fenno,	3 00
Second, L. W. Weston,	2 00
Garden Royal, John Cummings,	3 00
Gravenstein, Warren Heustis,	3 00
Second, William T. Hall,	2 00
Third, L. W. Weston,	1 00
Hubbardston Nonsuch, Walter Russell,	3 00

Second, J. T. Foster,	$2 00
Third, M. W. Chadbourne,	1 00
Hunt Russet, John Cummings,	3 00
Second, Samuel Hartwell,	2 00
King of Tompkins County, John Fletcher,	3 00
Second, Hovey & Co.,	2 00
Maiden's Blush, Warren Fenno,	3 00
Second, John Cummings,	2 00
Mother, " "	3 00
Northern Spy, William T. Hall,	3 00
Second, C. C. Shaw,	2 00
Porter, M. W. Chadbourne,	3 00
Second, George Hill,	2 00
Third, John Fletcher,	1 00
Pumpkin Sweet, Joseph Parker,	3 00
Second, George W. Stearns,	2 00
Rhode Island Greening, Horace Eaton,	3 00
Second, William T. Hall,	2 00
Roxbury Russet, Warren Heustis,	3 00
Second, John L. D'Wolf,	2 00
Talman's Sweet, J. T. Foster,	3 00
Washington Strawberry, Warren Fenno,	3 00
Second, Benjamin G. Smith,	2 00
Crab Apples.—Transcendent, Benjamin F. Hunt,	2 00
Second, Warren Fenno,	1 00
Pears.—Andrews, Samuel G. Damon,	3 00
Second, S. P. Langmaid,	2 00
Third, Jesse Haley,	1 00
Bartlett, John McClure,	3 00
Second, Hiram Barker,	2 00
Third, S. P. Langmaid,	1 00
Belle Lucrative, Isaac Oliver,	3 00
Second, Horace Eaton	2 00
Beurre d'Anjou, John C. Park,	3 00
Second, S. P. Langmaid,	2 00
Beurre Bosc, S. P. Langmaid,	3 00
Second, William P. Walker,	2 00
Third, Asa Bullard,	1 00
Beurre Clairgeau, Warren Fenno,	3 00
Second, John Fillebrown,	2 00
Third, S. P. Langmaid,	1 00
Beurre Diel, W. S. Janvrin,	3 00
Second, Benjamin G. Smith,	2 00
Beurre Hardy, W. S. Janvrin,	3 00
Second, Charles F. Curtis,	2 00
Third, Warren Fenno,	1 00
Beurre Langelier, S. G. Damon,	3 00

Second, C. E. Grant,	$2 00
Beurre Superfin, John C. Park,	3 00
Second, Alexander Dickinson,	2 00
Third, T. M. Davis,	1 00
Dana's Hovey, S. G. Damon,	3 00
Second, M. W. Chadbourne,	2 00
Doyenne Boussock, Marshall P. Wilder,	3 00
Second, Horace Eaton,	2 00
Doyenne du Comice, Warren Fenno,	3 00
Second John C. Park,	2 00
Third, John McClure,	1 00
Duchesse d'Angouleme, W. S. Janvrin,	3 00
Second, Alexander Dickinson,	2 00
Third, John C. Park,	1 00
Glout Morceau, William P. Walker,	3 00
Second, Warren Fenno,	2 00
Goodale, Marshall P. Wilder,	3 00
Second, C. E. Grant,	2 00
Howell, W. S. Janvrin,	3 00
Second, Warren Fenno,	2 00
Third, Marshall P. Wilder,	1 00
Lawrence, John McClure,	3 00
Second, Seth Weston,	2 00
Louise Bonne of Jersey, John C. Park,	3 00
Second, S. P. Langmaid,	2 00
Third, C. E. Richardson,	1 00
Marie Louise, Marshall P. Wilder,	3 00
Second, S. G. Damon,	2 00
Third, Warren Fenno,	1 00
Merriam, William A. Craft,	3 00
Second, A. McDermott,	2 00
Third, Charles F. Curtis,	1 00
Mount Vernon, Walker & Co.,	3 00
Second, A. McDermott,	2 00
Onondaga, or Swan's Orange, W. S. Janvrin,	3 00
Second, Warren Fenno,	2 00
Paradis d'Automne, Marshall P. Wilder,	3 00
Second, Hovey & Co.,	2 00
Third, Warren Fenno,	1 00
Seckel, John L. Bird,	3 00
Second, Horace Partridge,	2 00
Third, C. E. Richardson,	1 00
Sheldon, S. P. Langmaid,	3 00
Second, Warren Fenno,	2 00
Third, Charles F. Curtis,	1 00
Souvenir du Congrès, John C. Park,	3 00
Second, Marshall P. Wilder,	2 00

St. Michael Archangel, Marshall P. Wilder, ... $3 00
Second, Walker & Co., ... 2 00
Urbaniste, S. P. Langmaid, ... 3 00
Second, William A. Craft, ... 2 00
Third, Horace Eaton, ... 1 00
Vicar of Winkfield, W. S. Janvrin, ... 3 00
Second, William P. Walker, ... 2 00
Winter Nelis, John L. Bird, ... 3 00
Second, John F. Nickerson, ... 2 00
Third, C. E. Grant, ... 1 00
Peaches.—Any one variety, John F. Nickerson, Foster, . . 3 00
Second, S. D. Hadley, Foster, ... 2 00
Plums.—Four varieties, D. B. Flint, ... 4 00
Any one variety, J. L. Nicholson, Bradshaw, ... 3 00
Second, Joseph S. Chase, ... 2 00
Third, D. B. Flint, Coe's Golden Drop, ... 1 00
Native Grapes.—Six bunches of Concord, Joseph L. Pease, . 3 00
Second, C. C. Shaw, ... 2 00
Third, J. W. Talbot, ... 1 00
Delaware, Joseph S. Chase, ... 3 00
Second, J. W. Talbot, ... 2 00
Hartford, C. C. Shaw, ... 3 00
Second, Benjamin G. Smith, ... 2 00
Moore's Early, J. B. Moore, ... 3 00
Second, Benjamin G. Smith, ... 2 00
Wilder, or Rogers' No. 4, the second prize to S. G. Damon, . 2 00
Any other variety, Joseph S. Chase, Essex, ... 3 00
Second, John C. Park, Brighton, ... 2 00
Third, Benjamin G. Smith, Adirondac, ... 1 00
Foreign Grapes.—Six varieties, two bunches of each, the second prize to Benjamin G. Smith, ... 8 00
Four varieties, two bunches of each, Henry C. Cooke, . . . 8 00
Two bunches of any Black Grape, John L. Gardner, Black Hamburg, ... 4 00
Second, C. D. Kingman, Black Hamburg, ... 3 00
Two bunches of any White Grape, John Gardner, Buckland Sweetwater, ... 4 00
Second, C. D. Kingman, Royal Muscadine, ... 3 00

Gratuities:—

Marshall P. Wilder, Collection of Pears, ... 5 00
Hovey & Co., " " 5 00
C. E. Richardson, " " 3 00
Francis B. Hayes, " " 2 00
M. W. Chadbourne, " " 2 00
William P. Walker, " " 1 00
Warren Fenno, " " 1 00

William Richardson, Collection of Pears,	$1 00
C. E. Grant, " "	1 00
Charles Bird, " "	1 00
C. N. Brackett, " "	1 00
Mrs. E. M. Gill, Clapp's Favorite, "	1 00
J. H. Woodford, Flemish Beauty, "	1 00
Mrs. J. G. Brown, Peaches,	1 00
J. H. Dwelley, Pratt's Rareripe Peaches,	1 00
Benjamin G. Smith, Seedling Peaches,	1 00
Josiah Newhall, Lombard Plums,	1 00
J. C. McNeil, Plums,	1 00
Amos Bates, Collection of Native Grapes,	3 00
Joseph Heginbotham, Seedling Grape,	1 00
H. L. Higginson, fine Collection of Foreign Grapes,	6 00
J. W. Talbot, Belle de Fontenay Raspberries,	1 00

SEPTEMBER 20.

Gratuities: —

P. Ames, six varieties of Peaches,	3 00
John B. Moore, fine Crawford's Early Peaches,	1 00
C. E. Grant, Collection,	2 00

SEPTEMBER 27.

Gratuities: —

C. N. Brackett, Hubbardston Nonsuch Apples,	1 00
Mrs. William Boynton, Onondaga Pears,	1 00
A. Torrey, Beurre Hardy "	1 00
T. T. Sawyer, fine White Doyenne "	1 00
Moses Darling, Jr., Peaches,	1 00
Benjamin G. Smith, Collection of Foreign and Native Grapes,	5 00
Moses Darling, Jr., Delaware Grapes,	1 00
Hovey & Co., Brighton Grapes,	1 00
E. H. Hitchings, Isabella Grapes,	1 00
Horace Partridge, Collection,	2 00
C. E. Grant, "	1 00

OCTOBER 4.

Gratuities: —

Alexander Beal, Merriam Pears,	1 00
John McClure, Louise Bonne of Jersey and Beurre Clairgeau Pears,	3 00
George E. Freeman, fine Sheldon Pears,	2 00
Shurtleff Brothers, " "	1 00
Lemuel Clapp, fine Harris Pears,	2 00
Robert Manning, " "	1 00
Warren Fenno, fine Collection of Pears,	2 00
Henry F. Coe, " "	1 00
Aaron D. Capen, " "	1 00

John C. Park, Collection of Pears, ... $1 00
Joshua Stone, Collection of Apples and Pears, ... 2 00
Horace Partridge, Collection of Pears and Grapes, ... 3 00
M. H. Merriam, Diana Grapes, ... 1 00
C. E. Grant, Catawba " 1 00
E. W. Wood, three varieties of Foreign Grapes, ... 3 00
P. Ames, Collection of Peaches, ... 2 00
M. Darling, Jr., Peaches, ... 1 00
B. G. Smith, Reine Claude de Bavay Plums, ... 1 00
George Frazer, Collection, ... 1 00
Horace Eaton, Seedling Grape from the Concord, First Class Certificate of Merit.

October 11.

Gratuities:—

N. D. Harrington, Sheldon Pears, ... 1 00
J. B. Johnson, Howell Pears, ... 1 00
Benjamin F. Hunt, fine Duchesse d'Angouleme Pears, . . . 1 00
Horace Partridge, Collection of Pears and Grapes, ... 2 00
M. W. Chadbourne, Collection of Apples, ... 1 00
Mrs. S. Joyce, Orange Quinces, ... 1 00
W. G. Bailey, Grapes, ... 1 00

October 18.

Gratuities:—

T. A. Williams, Duchesse d'Angouleme Pears, ... 1 00
C. N. Brackett, Beurre d'Anjou Pears, ... 1 00
George E. Freeman, large Beurre Diel Pears, ... 1 00
N. D. Harrington, Duchesse d'Angouleme and Seckel Pears, . . 1 00
Benjamin Cushing, Frederick Clapp Pears, ... 1 00
C. E. Grant, Collection of Pears and Grapes, ... 3 00
Horace Partridge, Pears and Grapes, ... 1 00
M. H. Merriam, Grapes and Quinces, ... 1 00
Joseph S. Chase, " " " 1 00
Robert Manning, Quinces, ... 1 00

October 25.

Gratuities:—

Lemuel Clapp, Frederick Clapp Pears, ... 1 00
H. A. Fisk, fine Winter Nelis Pears, ... 1 00
John C. Park, Doyenne du Comice Pears, ... 1 00

November 1.

Gratuities:—

Warren Fenno, very fine Doyenne du Comice Pears, . . . 2 00
Moses Darling, Jr., Duchesse d'Angouleme Pears, ... 1 00
A. S. McIntosh, Collection of Pears, ... 2 00
S. D. Fisk, " " 1 00

CHRYSANTHEMUM SHOW.

November 12.

Winter Pears.—Beurre d'Anjou, S. P. Langmaid,	$3 00
Second, George Swain,	2 00
Third, W. S. Janvrin,	1 00
Dana's Hovey, Jesse Haley,	3 00
Second, J. W. Merrill,	2 00
Third, T. M. Davis,	1 00
Josephine de Malines, Warren Fenno,	3 00
Second, Benjamin G. Smith,	2 00
Lawrence, W. S. Janvrin,	3 00
Second, Isaac Oliver,	2 00
Third, John McClure,	1 00
Vicar of Winkfield, W. S. Janvrin,	3 00
Second, John McClure,	2 00
Winter Nelis, J. F. Nickerson,	3 00
Second, T. M. Davis,	2 00
Third, Mary L. Clouston,	1 00
Winter Apples.—Danvers Winter Sweet, Benjamin P. Ware,	3 00
Second, Benjamin G. Smith,	2 00
King of Tompkins County, Benjamin G. Smith,	3 00
Talman's Sweet, J. T. Foster,	3 00
Second, Moses Darling, Jr.,	2 00

French Premiums.

Winter Apples.—Baldwin, John H. Norcross,	3 00
Second, J. T. Foster,	2 00
Hubbardston Nonsuch, Amos Hill,	3 00
Second, M. W. Chadbourne,	2 00
Northern Spy, Sarah W. Story,	3 00
Second, Warren Fenno,	2 00
Rhode Island Greening, William T. Hall,	3 00
Second, Warren Fenno,	2 00
Roxbury Russet, Mrs. C. N. S. Horner,	3 00
Second, Benjamin G. Smith,	2 00

Gratuities:—

Marshall P. Wilder, Collection of Pears,	3 00
Warren Fenno, " "	5 00
Hovey & Co., " "	2 00
Lewis Hall, " "	2 00
J. W. Merrill, " "	2 00
William P. Walker, " "	2 00

A. S. McIntosh,	Collection of Pears,	$2 00
S. D. Fiske,	" "	2 00
Walker & Co.,	" "	2 00
Moses Darling, Jr.,	" "	1 00
H. A. Fisk,	" "	1 00
George Hill,	" "	1 00
John L. Bird,	" "	1 00
W. S. Janvrin,	Duchesse d'Angouleme Pears,	1 00
Amos Bates,	Mount Vernon Pears,	1 00
T. M. Davis,	Easter Beurre "	1 00
Aaron D. Capen,	Collection of Apples and Pears,	2 00
C. E. Grant,	" " "	2 00
Mrs. C. N. S. Horner,	Red Canada Apples,	1 00
Warren Fenno,	Lady's Sweet "	1 00
Benjamin P. Ware,	Drap d'Or "	1 00
Benjamin G. Smith,	Quinces,	1 00

REPORT

OF THE

Committee on Vegetables,

FOR THE YEAR 1879.

By CHARLES N. BRACKETT, Chairman.

In presenting our report for the year, we do so with a feeling of satisfaction that this department has been so well sustained, notwithstanding the radical change in the number of prize exhibitions, and a large reduction in the amount offered in prizes in comparison with previous years.

With but five regular exhibitions during the year, and these occurring at such long intervals, it was thought by many that the days appointed for these exhibitions would be more likely to be forgotten by contributors, after they had been accustomed for so long a period to their more frequent occurrence. Such may or may not have been the case in this department the past season, but it is nevertheless true, that there has been a large falling off in the number of contributors at all our exhibitions, in comparison with previous years.

By judicious rearrangement of the Schedule of Prizes (within the present appropriation for that object), substituting *prizes* at our weekly exhibitions, in place of *gratuities*, as in the past season, your Committee are confident that not only would the number of contributors be increased, but that the general character of our exhibitions would be improved, exhibitors better satisfied, and the Society at large correspondingly benefited.

In spite of the large dropping off in our corps of contributors, our exhibitions as a whole have been most gratifying in the superior growth and quality of the specimens offered, and in the new and improved varieties which have from time to time appeared on our

tables, showing that no lack of zeal has been manifested by those contributors who yet remain, and who, throughout the entire season, have been constant in their endeavors to make this department of the Society's exhibitions as full and interesting as under the circumstances we could expect.

The exhibitions of forced vegetables with which we used to be occasionally favored a few years since, during the winter and early spring months, have, we are sorry to say, been gradually growing less. Not a solitary specimen of any kind was to be seen on our tables during the months of January and February, and but three contributions in March, previous to the opening exhibition. Will not our enterprising market gardeners, of whom we have a goodly number in our ranks, second to none in the country for their skill and success in the growing of forced vegetables, see to it, that in the future this interesting and instructive feature of our exhibitions is not left to go by default?

The opening, or first regular prize exhibition of the season, occurred March 19, at which time there was a small, but choice collection of specimens shown, of the usual varieties grown under glass at this season. Some fine celery was also exhibited by George Hill, and mushrooms by C. B. Gardiner. During the intervals between the regular exhibitions, and as the season advanced there was a corresponding degree of interest manifested by contributors. At the weekly shows, when there were no prizes offered, although a falling off in the number of contributors was noticed compared with last year, the displays, so far as the superior character of the objects shown was concerned, have not been surpassed at any of our former exhibitions. As we before remarked, the offering of prizes in lieu of gratuities, we are certain would give us more satisfactory exhibitions, increase the number of contributors, and thereby the better promote the objects for which we as a Society are associated.

At the Rhododendron Show, June 7, competition for the prizes offered was not large, and quite a number of second prizes were not awarded. At this exhibition the first prize for asparagus was again won by John B. Moore.

At the Strawberry Show, June 21, we were favored with the best and most satisfactory exhibition of the season. The specimens offered were numerous and excellent, and competition for the prizes was unusually spirited.

The show of peas at this time was remarkably full and fine, and in great variety. M. W. Chadbourne was the successful competitor for both the first and second prizes, winning the same with Little Gem and Alpha, respectively. On several occasions later in the season, very fine collections were shown by the same contributor, prominent among which were the following varieties: Advancer, Veitch's Perfection, Little Wonder, and Carter's Challenger. The last named variety it will be recollected was shown last season by C. M. Atkinson, and was much admired by all who saw it. It is one of the finest, most prolific, and best flavored varieties; has large, handsome well-filled pods, and possesses in a marked degree the qualities of a first-class market pea. Height from two to two and a half feet.

Carter's Little Wonder is a new variety shown here for the first time. It is a wrinkled marrow, coming in at the same time as the Advancer. The pods are large, abundant, and full, and the peas of fine quality. Height about twenty inches. Both of these varieties appear to possess points of marked excellence, more particularly the Challenger.

A few vegetables, new, or of recent introduction, have been exhibited the past season, some of which are thought deserving of mention; among them the following may be specified:

A new Cauliflower, shown June 28, by Josiah Crosby, called the Early Snowball; of dwarf habit, with short leaves, forming handsome, compact heads eight or nine inches in diameter, during the month of June. In this climate *early* Cauliflowers are often a very unsatisfactory crop, our summers being so hot and dry that most kinds fail to mature at this season. It is claimed for this variety that it is able to withstand the extreme changes of this climate, and will form beautiful, firm, white heads in June, when other varieties, planted under similar circumstances, would fail. If this prove true, it will become an excellent sort for early planting and forcing.

Few among the new vegetables of recent introduction have given more general satisfaction than Potter's Excelsior Sweet Corn. Of its origin we know comparatively little, except that it originated with a Mr. Potter, somewhere in Rhode Island. We have never seen it advertised in any of the seed catalogues, and it does not appear to be very widely disseminated. Those persons, however, who were fortunate enough to obtain seed, and grow this variety

the past season, are unanimous in pronouncing it the best corn they ever tasted, and without a superior as a fine table corn. Planted at the same time as the Early Crosby, it will come in about two weeks later than that variety, and continue a long time in condition for the table. With two plantings, we had it in our own grounds in eating through the entire season, until killed by severe frosts in October. We found it the tenderest, and by far the sweetest variety we ever tasted, and very prolific. We advise all lovers of *Sweet* Corn, who have a rod of ground, to procure and plant this variety the coming season, and if the seed is true, our word for it, they will not be disappointed with the result.

A new Potato was exhibited during the season, by Samuel Hartwell, and M. W. Chadbourne, called the Beauty of Hebron. It is considered by those who have given it a trial, to be one of the best potatoes yet introduced. The tubers are of good size, smooth, and slightly tinged with pink about the eyes, productive, of excellent quality, and as early as the Early Rose. John B. Moore also showed at the Annual Exhibition a new Potato, called Mammoth Pearl, which attracted considerable notice. It was a large and very handsome white skinned variety, of good quality, and said to be an excellent keeper. At the Annual Exhibition, the Mammoth Pearl took the first and Beauty of Hebron the second prize, for the best of any other variety than those named in the Schedule.

August 23, M. H. Merriam presented specimens of the Acme Tomato, a new and very handsome variety, remarkable for its smoothness and perfect form. The flesh is solid, and the quality excellent. The skin has a dull red or pinkish tinge, objected to by some, who prefer, in a variety for market purposes, the deep, showy red of the Emery, or the brilliant, glossy crimson of the Gen. Grant.

At the closing exhibition, November 12, Aaron Low, of Essex, placed upon the table specimens of his new Turban Squash, with the following statement:

"This new variety is a cross between the Turban and Hubbard Squashes. While retaining the perfect form, color, and fine flavor of the Turban, it has the hard, flinty shell of the Hubbard, and is superior to that excellent variety as a keeper; specimens of last year's crop keeping till June perfectly sound.

"The specimens on exhibition were taken from a crop of fifteen tons raised the past season, after a crop of early peas and potatoes.

The seed was planted after their last hoeing, on the 25th of June, and the 3d of July. This variety appears to be well adapted for late planting, to follow early crops, as it grows rapidly, and matures very quickly. Squashes have grown this season, from seed planted the 3d of July, to weigh twelve pounds in just two months. It is very uniform in appearance, productive, and second to none in quality for the table."

Several of your Committee, and others, members of the Society, tested specimens of this Squash, sent by Mr. Low for the purpose, and, so far as heard from, all agree that although not *quite* equal in quality to a well grown Hubbard, it is, nevertheless, a very fine variety; dry, fine grained, and of excellent flavor; a great improvement on the common Turban, and possessing, in a marked degree, the characteristics usually sought for in a market variety.

At the Annual Exhibition nearly all the prizes were awarded, and the specimens shown were fully up in quality to the average of the last few years. I. P. Dickinson, of Springfield, Mass., who makes the cultivation of the Watermelon a specialty, again favored us with a fine collection, surpassing his exhibition of last year, which was thought then to be the best ever made at any of the Society's shows. The varieties were Gypsy, Excelsior, Black Italian, Long Hill Solid, and Peerless. The specimens were superb, forming a prominent feature of this exhibition, and attracting the attention of all who entered the hall. They furnished ample evidence of Mr. Dickinson's skill, ability, and success as a cultivator of the melon. They did not arrive in season for competition, however, which the Committee regretted exceedingly, especially as it was through no fault of the exhibitor. At this exhibition, the new Tomato, Acme, was again shown in great perfection by John B. Moore, George W. Pierce, James Comley, and others, and took both the prizes for the best of "any other variety." The largest collection of Tomatoes was shown by John Cummings, who took the first premium for the best three varieties, and the first prizes for the best single dishes of Emery and Arlington. Very fine collections were also exhibited by C. E. Grant, and M. H. Merriam.

The attention of contributors is called to important changes in the Schedule of Prizes for the coming year.

The annexed list shows the amount of prizes and gratuities awarded by your Committee during the year, and designates the

successful competitors. The amount appropriated to the Vegetable Committee was $500, of which $475 was awarded in prizes and gratuities, leaving an unexpended balance of $25 to be returned to the treasury.

All of which is respectfully submitted,

C. N. Brackett,
Josiah Crosby,
Walter Russell,
George W. Pierce,
John Fillebrown,
Samuel Hartwell,
C. E. Grant,

Committee on Vegetables.

PRIZES AND GRATUITIES AWARDED FOR VEGETABLES.

March 1.

Gratuity :—

Josiah Crosby, Lettuce and Radishes, ... $2 00

March 8.

Gratuity :—

Cephas H. Brackett, Cucumbers, ... 1 00

March 15.

Gratuity :—

William D. Philbrick, Lettuce, ... 1 00

AZALEA AND ROSE EXHIBITION.

March 19.

Cucumbers.—Pair of White Spine, C. H. Brackett, . . . 3 00
Lettuce.—Four heads Tennisball, Josiah Crosby, ... 3 00
Second, W. D. Philbrick, ... 2 00
Third, George F. Stone, ... 1 00
Radishes.—Four bunches Turnip Rooted, J. Crosby, . . . 3 00
Mushrooms.—Twenty-four specimens, C. B. Gardiner, . . . 2 00

Gratuity :—

George Hill, Celery and Dandelions, ... 2 00

May 3.

Gratuity :—

William C. Strong, Gen. Grant Tomatoes, ... 1 00

May 10.

Gratuity :—

M. W. Chadbourne, Rhubarb and Asparagus, ... 1 00

May 17.

Gratuities :—

Samuel Hartwell, Asparagus, ... 1 00
A. W. Nickerson, Marquis of Lorne Cucumbers, ... 2 00

RHODODENDRON SHOW.

June 7.

Asparagus.—Four bunches, John B. Moore,	$3 00
Second, L. W. Weston,	2 00
Third, Samuel Hartwell,	1 00
Cucumbers.—Pair, John Fillebrown,	3 00
Second, Josiah Crosby,	2 00
Rhubarb.—Twelve stalks, M. W. Chadbourne,	3 00
Second, L. W. Weston,	2 00
Radishes.—Four bunches Long Scarlet, J. Crosby,	3 00
Carrots.—Twelve Short Scarlet, Josiah Crosby,	3 00
Beets.—Twelve specimens, Josiah Crosby,	3 00

Gratuities:—

Samuel Hartwell, Rhubarb,	1 00
W. G. Prescott, "	1 00

June 14.

Gratuities:—

M. W. Chadbourne, Collection of Peas,	1 00
Samuel G. Stone, " "	1 00
C. E. Grant, " "	1 00

ROSE EXHIBITION.

June 21.

Peas.—One peck, M. W. Chadbourne, Little Gem,	3 00
Second, M. W. Chadbourne, Alpha,	2 00
Third, Samuel G. Stone, Little Gem,	1 00
Beets.—Twelve Egyptian, Josiah Crosby,	3 00
Second, S. G. Stone,	2 00
Cucumbers.—Pair of White Spine, J. Crosby,	3 00
Second, John Fillebrown,	2 00
Third, George W. Pierce,	1 00
Lettuce—Four heads of any variety, John B. Moore,	3 00
Second, M. W. Chadbourne,	2 00
Onions.—Twelve specimens, J. Crosby,	3 00
Second, John Fillebrown,	2 00
Carrots.—Twelve Intermediate, J. Crosby,	3 00

Gratuities:—

Josiah Crosby, Collection,	4 00
C. E. Grant, Peas,	1 00

Samuel Hartwell, Dexter Peas,	$1 00
George Hill, Cucumbers,	1 00
W. D. Philbrick, Cucumbers,	1 00
Samuel G. Stone, Turnips,	1 00
Mrs. E. M. Gill, Parsley,	1 00

JUNE 28.

Gratuities :—

M. W. Chadbourne, Collection,	2 00
Samuel G. Stone, "	1 00
C. E. Calder, Lettuce,	1 00
Josiah Crosby, Cauliflowers,	1 00

JULY 5.

Gratuities :—

M. W. Chadbourne, Advancer, Veitch's Perfection, and Carter's Challenger Peas,	1 00
Josiah Crosby, Summer Squashes,	1 00

JULY 12.

Gratuities :—

M. W. Chadbourne, Little Wonder Peas,	1 00
Samuel Hartwell, Black Eyed Marrowfat Peas,	1 00
Mrs. E. M. Gill, Horticultural Beans,	1 00
S. G. Stone, Champion Peas and Wax Beans,	1 00

JULY 19.

Gratuities :—

John Fillebrown, Collection,	4 00
Samuel G. Stone, "	1 00
Josiah Crosby, Narragansett Corn,	1 00
Samuel Hartwell, " "	1 00
C. E. Grant, Sweet Corn,	1 00
George Hill, Emery Tomatoes,	1 00
C. D. Kingman, Gen. Grant and Excelsior Tomatoes,	1 00
Mrs. E. M. Gill, Beans,	1 00

JULY 26.

Gratuities :—

John Fillebrown, Collection,	3 00
Josiah Crosby, "	2 00
Mrs. E. M. Gill, Black Wax Beans,	1 00
C. N. Brackett, Canada Victor Tomatoes,	1 00
M. W. Chadbourne, Potatoes,	1 00
L. W. Weston, Weston's Early Sweet Corn,	1 00

AUGUST 2.

Gratuities :—

John B. Moore, Tomatoes,	1 00

M. W. Chadbourne, Collection of Tomatoes, ... $1 00
Samuel Hartwell, Crosby Corn, ... 1 00
C. E. Grant, " " 1 00
M. H. Merriam, Collection, ... 2 00

AUGUST 9.

Gratuities :—

M. W. Chadbourne, Collection, ... 3 00
Josiah Crosby, Egg Plant, ... 2 00
Samuel Hartwell, Burr's Corn, ... 1 00
C. N. Brackett, Gen. Grant Tomatoes, ... 1 00
J. B. Moore, Tomatoes, ... 1 00

AUGUST 16.

Gratuities :—

C. E. Grant, Collection, ... 2 00
M. W. Chadbourne, Collection, ... 1 00
C. N. Brackett, " 1 00
M. H. Merriam, " 1 00
Samuel G. Stone, Stowell's Corn, ... 1 00
Samuel Hartwell, Burr's " 1 00
Josiah Crosby, Egg Plant, ... 1 00

AUGUST 23.

Gratuities :—

S. G. Stone, Collection, ... 2 00
M. W. Chadbourne, Collection, ... 1 00
John Cummings, Tomatoes, ... 1 00
M. H. Merriam, Acme Tomatoes, ... 1 00
Benjamin G. Smith, Lima Beans, ... 2 00
Samuel Hartwell, " " 1 00
C. E. Grant, Melons and Lima Beans, ... 1 00
Josiah Crosby, " " Peppers, ... 1 00
C. N. Brackett, " " Beans, ... 1 00

AUGUST 30.

Gratuities :—

John Cummings, Collection of Beans, ... 2 00
S. G. Stone, " " 2 00
Benjamin G. Smith, " " 1 00
Samuel Hartwell, " " 1 00
M. W. Chadbourne, " " 1 00
Mrs. E. M. Gill, Sweet Corn, ... 1 00
M. H. Merriam, Peppers, ... 1 00
James Comley, Tomatoes, ... 1 00
John B. Moore, " 1 00
C. D. Kingman, Sweet Potatoes, ... 1 00
C. N. Brackett, Collection of Beans, ... 1 00
J. Crosby, Celery, ... 2 00

ANNUAL EXHIBITION.

SEPTEMBER 9, 10, 11, and 12.

BEETS.—Turnip Rooted, George F. Stone,	$3 00
Second, John Fillebrown,	2 00
Third, Charles N. Brackett,	1 00
CARROTS.—Long Orange, Josiah Crosby,	3 00
Second, J. Fillebrown,	2 00
Third, John L. D'Wolf,	1 00
Intermediate, J. Crosby,	3 00
Second, Walter Russell,	2 00
Third, John Fillebrown,	1 00
SWEET CORN.—John Cummings, Stowell's,	3 00
Second, " " Burr's,	2 00
Third, George Dorr, "	1 00
FIELD CORN.—Mrs. M. T. Goddard,	3 00
Second, C. N. Brackett,	2 00
CAULIFLOWERS.—Four, John Cummings,	4 00
Second, J. B. Moore,	3 00
CELERY.—Four heads, Josiah Crosby,	4 00
TOMATOES.—Three varieties, J. Cummings,	4 00
Second, C. E. Grant,	3 00
Third, M. H. Merriam,	2 00
Arlington, John Cummings,	2 00
Boston Market, Walter Russell,	2 00
Second, J. Cummings,	1 00
Emery, J. Cummings,	2 00
Second, C. N. Brackett,	1 00
Gen. Grant, Francis B. Hayes,	2 00
Second, C. N. Brackett,	1 00
Any other variety, George W. Pierce, Acme,	2 00
Second, John B. Moore, Acme,	1 00
OKRA.—Twenty-four specimens, Mrs. M. T. Goddard,	2 00
MARTYNIAS.—Twenty-four, M. W. Chadbourne,	2 00
Second, George W. Pierce,	1 00
CRANBERRIES.—Half-peck, O. M. Holmes,	2 00
GREENFLESH MELONS.—Four, C. F. Curtis,	3 00
Second, W. Richardson,	2 00
Third, J. B. Moore,	1 00
MUSKMELONS.—Four, Samuel Hartwell,	3 00
Second, George A. Slack,	2 00
WATERMELONS.—Pair, Samuel Hartwell,	3 00
LIMA BEANS.—Two quarts, Benjamin G. Smith,	3 00
Second, Samuel Hartwell,	2 00
Third, Samuel G. Stone,	1 00

Parsnips.—Long, W. A. Crafts,	$3 00
Second, J. L. D'Wolf,	2 00
Third, J. Fillebrown,	1 00
Potatoes.—Four varieties, Mrs. M. T. Goddard,	4 00
Second, C. N. Brackett,	3 00
Early Rose, J. Cummings,	3 00
Second, J. L. D'Wolf,	2 00
Third, S. Hartwell,	1 00
Snowflake, J. L. D'Wolf,	3 00
Second, George A. Slack,	2 00
Third, Mrs. M. T. Goddard,	1 00
Any other variety, John B. Moore, Mammoth Pearl,	3 00
Second, Samuel Hartwell, Beauty of Hebron,	2 00
Third, Mrs. M. T. Goddard, King of the Earlies,	1 00
Salsify.—Twelve specimens, John L. D'Wolf,	3 00
Second, B. G. Smith,	2 00
Third, J. Cummings,	1 00
Squashes.—Canada, C. E. Calder,	3 00
Second, Josiah Pratt,	2 00
Third, Mrs. M. T. Goddard,	1 00
Hubbard, Seth W. Hathaway,	3 00
Second, Walter Russell,	2 00
Third, John Fillebrown,	1 00
Marrow, George Hill,	3 00
Second, S. W. Hathaway,	2 00
Third, J. Fillebrown,	1 00
Marblehead, S. W. Hathaway,	3 00
Second, J. Cummings,	2 00
Third, Mrs. L. P. Weston,	1 00
Turban, Seth W. Hathaway,	3 00
Second, J. Fillebrown,	2 00
Third, Mrs. L. P. Weston,	1 00
Flat Swedish Turnips.—Twelve, Walter Russell,	3 00
Twelve, Samuel Hartwell,	3 00
Second, Mrs. M. T. Goddard,	2 00
Third, J. Cummings,	1 00
Cabbages.—Drumhead, Seth W. Hathaway,	3 00
Second, C. E. Calder,	2 00
Third, J. Cummings,	1 00
Red, J. Cummings,	3 00
Mrs. M. T. Goddard,	2 00
Savoy, John Cummings,	3 00
Second, C. E. Calder,	2 00
Third, Mrs. M. T. Goddard,	1 00
Horseradish.—Six roots, J. Fillebrown,	3 00
Second, W. Russell,	2 00
Peppers.—Twenty-four, C. N. Brackett,	3 00

Second, J. Fillebrown,	$2 00
Third, George F. Stone,	1 00
Onions.—Danvers Yellow, George Hill,	3 00
Second, J. B. Moore,	2 00
Third, W. Russell,	1 00
Red, Samuel Hartwell,	3 00
Portugal, J. Fillebrown,	3 00
Egg Plants.—Large Purple, W. Russell,	3 00
Second, J. Crosby,	2 00
Third, J. B. Moore,	1 00

Gratuities:—

I. P. Dickinson, Collection of Watermelons,	5 00
W. H. Spooner, Vegetable Marrow,	1 00
C. N. Brackett, Florida Pumpkins,	1 00
Samuel Hartwell, Onions,	1 00
John Fillebrown, Cracker Onions,	1 00
C. N. Brackett, California Beans,	1 00
C. E. Grant, Collection of Tomatoes,	1 00
James Comley, Acme Tomatoes,	1 00
M. H. Merriam, Collection of Peppers,	1 00
George W. Pierce, " "	1 00
C. D. Kingman, Sweet Potatoes,	1 00
Seth W. Hathaway, Cabbages,	1 00
Walter Russell, Parsley,	1 00

September 20.

Gratuities:—

C. E. Grant, Collection of Tomatoes,	1 00
John Cummings, Cauliflowers,	1 00

September 27.

Gratuities:—

John Cummings, Cauliflowers,	2 00
C. N. Brackett, Peppers,	1 00

October 4.

Gratuities:—

C. E. Grant, Collection,	2 00
J. Crosby, Celery,	2 00
Mrs. E. M. Gill, Sweet Corn,	1 00
J. Cummings, Collection,	2 00
C. N. Brackett, "	2 00
Samuel G. Stone, "	2 00

October 11.

Gratuities: —

J. Cummings, Cauliflowers,	$1 00
C. N. Brackett, Brussells Sprouts,	1 00
M. W. Chadbourne, Collection,	1 00
Samuel G. Stone, "	1 00

October 18.

Gratuities: —

C. E. Grant, Collection,	2 00
Samuel G. Stone, "	1 00
Josiah Crosby, Celery,	2 00
C. N. Brackett, Sieva and California Beans,	1 00
Mrs. E. M. Gill, Parsley,	1 00

October 25.

Gratuities: —

Josiah Crosby, Celery,	2 00
C. E. Grant, Tomatoes and Lima Beans,	1 00
S. G. Stone, Corn and Beans,	1 00

November 1.

Gratuities: —

Josiah Crosby, Celery,	2 00
C. E. Grant, Collection,	1 00
C. N. Brackett, California Beans,	1 00

November 8.

Gratuity: —

Josiah Crosby, Celery,	1 00

CHRYSANTHEMUM EXHIBITION.

November 12.

Celery.—Four roots, Josiah Crosby,	3 00
Cabbages.—Drumhead, three, John Cummings,	3 00
Second, Mrs. M. T. Goddard,	2 00
Red, three, John Cummings,	3 00
Second, Mrs. M. T. Goddard,	2 00
Savoy, three, John Cummings,	3 00
Second, Mrs. M. T. Goddard,	2 00
Salsify.—Twelve specimens, Benjamin G. Smith,	3 00
Second, John Cummings,	2 00

Brussells Sprouts.—Half-peck, C. N. Brackett,	$2 00
Second, Mrs. M. T. Goddard,	1 00

Gratuities: —

C. E. Grant, Collection of Tomatoes,	2 00
A. S. McIntosh, Artichokes,	1 00
Marshall P. Wilder, Mammoth Squash (106½ lbs.),	2 00
Aaron Low, Hard Shell Turban Squash,	2 00
M. W. Chadbourne, Squashes,	1 00
Mrs. M. T. Goddard, Field Corn,	1 00

November 15.

Gratuity: —

Josiah Crosby, Celery,	1 00

REPORT

OF THE

COMMITTEE ON GARDENS,

FOR THE YEAR 1879.

By JOSEPH H. WOODFORD, Chairman.

The Garden Committee beg leave to present the following report of their doings for the past year:

On the second day of June your Committee were again invited to visit "Pine Hill," the beautiful summer residence of Hon. Francis B. Hayes, at Lexington. This year completes the three years' inspection of this estate, it having been entered, in 1877, for the Hunnewell Triennial Prize.

The improvements and embellishments which have been added to this estate since it has come under the eye of your Committee, are very significant and enduring. The ample resources of the proprietor have enabled him to collect a great variety of shrubs and trees of the choicest species from all parts of the world, and this, in itself, is enough to make the place renowned as a splendid arboretum; but when to this is added good taste in the laying out of grounds, and good judgment in the grouping of trees and shrubs, we certainly realize from viewing such an estate a greater pleasure, and one which will endure long after your Committee shall have finished their labors.

The special attraction of this first visit was the display of rhododendrons, under a very large tent on the lawn in the garden north of the mansion. A goodly number of the plants occupied permanent positions, while others were plunged in the turf in such a manner as to perfect the beds and give them the proper contrast as regards colors. They consisted of the very best varieties to be had

from all the foreign and domestic nurseries devoted to the cultivation of this beautiful class of plants.

The collection was truly very beautiful, and it was the unanimous opinion of the Committee, that the display was one of the finest they had ever witnessed. The judgment of the Committee was confirmed later on by the action of the Flower Committee of our Society, in awarding to Mr. Hayes the first prize over all competitors at the annual exhibition of these choice plants.

The following is a list of a few we noticed as uncommonly elegant:

Alarm.
Album elegans.
Auguste Van Geert.
Candidissimum.
Charles Bagley.
Concessum.
Étendard de Flandre.
Fastuosum.
Madame Bertha Froebel.
Mrs. John Waterer.
Onslowianum.
Purpureum elegans.
Queen.
Raphael.
Rosabel.
Stella.
Titian.
Torlonianum.

The second and last inspection of the year took place August 20th, when some fifty persons, beside the Committee, also enjoyed a day of restful pleasure, such as is rarely provided for the busy sons of toil, and never provided except by those who, in the fulness of their hearts, desire their neighbors and friends to share in the blessings so bountifully showered upon them.

The day was auspicious, and the drive over the farm delightful. Improvements were in progress in all directions; rough places were being made smooth, and crooked ones straight. Vistas through the forest were being opened, and the planting of newly imported shrubs and trees was in contemplation. In fact, the whole place showed the irrepressible enthusiasm and lively perseverance of the proprietor. The beds around the mansion were adorned with very fine specimens of English hollies and other choice plants. Tree ferns, araucarias, palms, and other elegant plants, were disposed along the driveway. The whole place is filled with the choicest hardy trees and shrubs from all parts of the world, and for such as will not endure our rigorous winters, the proprietor has provided an extensive cold plant-house, where they are cared for during this inclement season, to be replanted in the spring.

The company present heartily enjoyed the good cheer and generous hospitality of this noble place, and your chairman would not be doing justice in this report if he did not record his appreciation of Mr. Hayes' endeavors to make every one happy while visiting him, because of his enthusiasm in the pursuit of horticulture, and the bringing together of men of different tastes in other matters, to admire and talk over the beautiful things in nature, which God in his great goodness has so bountifully showered upon him and his household. In closing this report, your chairman quotes the words of the editor of The "American Cultivator," who was one of our number on this pleasant day. He concludes a long account of this excursion with the following language:

"Our account would be incomplete did we not allude to the social and hearty hospitality of which the visiting committee were made the recipients. Sitting under the comfortable shade of the awning, taking in the beauty of the plant decorations near the mansion; the wealth of palms, tree ferns, bananas, hollies, screw-pines, dracænas, agaves, and other rare and proud plants, and, looking at the goodly company, one could not help thinking of the humanizing and refining influences of horticultural and floricultural pursuits. Here men of different years and positions and tastes in other matters, met together in common, and claimed friendship over those beautiful things for which they each have the same love. May they, like our genial host, find in the pleasures of a garden and the care of flowers and fruits their choicest and best enjoyments."

The Committee award to Hon. Francis B. Hayes, the highest Hunnewell Triennial Prize.

On the 5th of September, your Committee visited Pine Grove Cemetery, at Lynn, by invitation of John G. Barker, who has the superintendence of the work and embellishments of this city of the dead. The grounds comprise about one hundred and eight acres, about half of which has been subjugated, and presents a very commendable and pleasant appearance. The natural aspect of the ground is very forbidding to the agriculturist, for it is filled with rocks and boulders, and the labor of subduing the obstacles and getting the land into tillable condition is immense, and very expensive. Consequently, the improvements are slow and wearisome; but the indefatigable industry and perseverance of the superintendent, is steadily and surely reclaiming the waste places, and

each succeeding year more tillable territory is added, and more attention is devoted to ornamenting the grounds by the judicious use of flowering plants and shrubs. The entrance to the cemetery is naturally very beautiful, and is made more so by the good taste exhibited in its decorations. The groupings of shrubbery and trees, and massing of plants, were striking, and made very effective adornments. At the south end of the enclosure is situated Mount Dearborn, surmounted by Forest Rock, and the outlook from this spot is very extensive, and probably unsurpassed by any eminence in this vicinity. Looking south, out over Boston harbor, — with its numerous islands, and the ships gliding in and out, — we have, away in the distance, the Blue Hills of Milton as a splendid background. In the east, Nahant's rocky promontory juts out into the blue waters of the bay; while in the west, the more peaceful and wide sweeping meadows of Saugus river, dotted with innumerable picturesque hay-stacks, make a landscape — crowned by Bunker Hill monument — long to be remembered, and one which everyone should see to appreciate.

The chairman of your Committee, in retiring from his pleasant duties, begs to thank gentlemen for the favors extended to him while occupying this delightful position.

J. H. WOODFORD, *Chairman.*

REPORT

OF THE

COMMITTEE OF ARRANGEMENTS,

FOR THE YEAR 1879.

The Committee of Arrangements respectfully submit the following Report:

The aim of the Committee during the present year, 1879, has been to do all in their power to render the exhibitions of the Society creditable and in every way worthy of the well deserved reputation which has been so honorably attained, and the approbation of the public, so justly awarded, and which has attended all its efforts for the advancement of horticultural knowledge for the past fifty years, or since the formation of the Society.

When we look back upon the past and review the noble work that has been performed and the objects gained—the unwearied labors of those who founded the Massachusetts Horticultural Society, and the great interest they felt in all that pertained to its welfare and ultimate success—we are filled with admiration as we contemplate their indomitable perseverance. While we read of their doings from week to week and month to month, and the active part they took in all that would benefit and strengthen the work which they loved with a purely unselfish devotion, we cannot fail to be well satisfied with and proud of the results that have been accomplished.

The interest which our fathers evinced in the work has been inherited by the sons and has continued unabated from year to year. The improvement made in fruits, flowers, and vegetables has been steady and progressive and is acknowledged by the gardeners, horticulturists, and pomologists, not only throughout our own country, but by those of Great Britain, France, Belgium, and other countries of Continental Europe.

The record of the Society is one we may well be proud of, and

it should ever be borne in mind that the main object to be kept in view, in connection with its future prosperity and all that concerns its perpetual welfare, is to continue to take such a lively, heartfelt interest in everything connected with its transactions as will maintain its well earned reputation for reliability in everything relating to the cultivation of fruits, flowers, and vegetables, and every branch of gardening, useful and ornamental.

The meetings of the Committee have been frequent and fully attended at stated times throughout the year, and its discussions have been profitable to the best interests of the Society.

The exhibitions have been fully attended and an increased interest has been manifested by the public generally. The newspapers have reported the exhibitions in full, and have, thereby, shown a willingness and desire, by giving full details, to keep the people well informed on a subject that should interest every citizen, and much credit is due the reporters for their generous courtesy.

The Committee have every reason to congratulate the members of the Society, and believe that the success which has attended their efforts this year will be continued, and that the close of the coming year will show increased prosperity worthy of the exertions of those who labor in a cause that benefits the whole community.

CHARLES H. B. BRECK, *Chairman.*

REPORT

OF THE

COMMITTEE ON PUBLICATION AND DISCUSSION.

The first part of the "Transactions" of the Society, which includes the essays and discussions of the current year, under the careful editorial supervision of our Secretary, has been already published, and little is left for the Committee to suggest. We are still of the opinion that these discussions are a valuable feature in the work of the Society, and that it is the duty of every member to sustain them by contributions of information to the extent of his power.

Prizes for essays upon subjects of practical interest were offered by the Committee this year, as in former seasons, but the number of manuscripts competing for the prizes has been quite limited. We have thought that the amount of prize money offered was sufficiently large to call out competitors, especially since we may presume there is a general interest in the questions proposed, independent of the prizes. Whether, if the Society should offer an increased amount of prize money, a larger number of writers would be called out is a question which we cannot decide. At any rate, the Committee have not been at liberty, in the present circumstances of the Society, to ask for a larger appropriation.

The history of the Society is now in the hands of the printers, and we may hope to receive it early in the coming year.

The following prizes have been awarded:

For an essay upon "The most promising, new, hardy, ornamental trees and shrubs, and their tasteful and effective arrangement," to Samuel Parsons, Flushing, N. Y., the prize of	$25 00
For an essay upon "The profits of farming and gardening in New England," to W. D. Philbrick, Newton Centre, the prize of	25 00

WILLIAM C. STRONG,
A. B. MUZZEY,
E. LEWIS STURTEVANT.
} *Committee on Publication and Discussion.*

Report of the Secretary,

FOR THE YEAR 1879.

As in previous years the work in this department has consisted largely of routine matters, such as the notes of discussions, and the editing and printing of the same and of the various annual reports of committees; the reports in the Evening Transcript of exhibitions and meetings, and keeping the various records required. The History of the Society, which was last year announced as finished as far as was then possible, has been carried forward so as to include the year 1878, thus completing the half century of the Society's existence; the contract for printing has been made and the work is now in the hands of the printer. Circulars inviting subscriptions have been sent to every member of the Society, which, with receiving and recording the responses, (though the latter were not as many as could be wished) has occupied a considerable amount of time. The celebration of the Semi-Centennial anniversary of the Society added largely to my labors, as has also the position of Secretary of the Library Committee. The abundant crop of pears this year has brought with it a plentiful crop of inquiries as to the names of specimens, the greater part of which have been satisfactorily answered, although at the expense of considerable time in examination.

The usual miscellaneous calls for information have not been less in number than heretofore, and the time occupied in answering them has consequently not been less than in previous years, and added to other duties has largely increased the labors of the office.

ROBERT MANNING, *Secretary.*

REPORT

OF THE

LIBRARY COMMITTEE,

FOR THE YEAR 1879.

The Committee on the Library present through me the following report of their proceedings for the year 1879 :

The sum derived from the Stickney donation has been spent in the manner prescribed; and the Society's appropriation has been expended in subscriptions to periodicals, and in binding. This sum has not been found too much; and, as there are several periodicals, both foreign and American, not yet on our list, it will be for the best interests of the Society not to diminish the amount of the annual grant.

A blank-book has been kept at the Librarian's desk during the year, for the convenience of those who wished to suggest books for purchase. This has been used by members to some extent, and the greater part of the books suggested have been bought. It is hoped that many more will take this way of expressing their wishes during the year to come.

A bulletin containing the names of all books added to the Library has been posted in a conspicuous position during the year so that any person could at any time see the titles of the latest acquisitions. This, which we believe to have been a convenience to many, will be continued in the future.

The Committee has continued to purchase everything published on the culture and management of plantations of forest trees. This is an interest which seems likely to be more important with each succeeding year; and it will be to the honor and profit of this Society that its Library shall never be lacking in the literature of the subject. Of books relating to the structure of plants and the

adaptation of certain organs to special purposes, the principal received are Kerner's "Flowers and their Unbidden Guests," and Taylor's "Flowers: their Origin, Shapes, Perfumes, and Colors." In the branch of Pomology the most noteworthy acquisitions are a set of the "Annales de Pomologie," and an English work, called "The Herefordshire Pomona," issued in parts, of which only the first has yet been received, whose colored plates are executed in the highest style of art, and whose text is of corresponding excellence. The most important of our purchases for the year is the "Gartenflora," edited by Dr. Regel, curator of the Imperial Botanic Garden of St. Petersburg. A complete set of this work is not easy to obtain, but by the kindness of Mr. Ross, whose interest in the Library has not ceased with his chairmanship of its committee, we received notice that a full set was to be had, at a reasonable price, in Berlin. This set is now our property, and the continuation of the work is received from month to month. The text is in the German tongue, but the colored plates are in a universal language, for the comprehension of which no one needs either grammar or dictionary.

No estimate has been made of the number of colored plates in this year's purchases, but it must amount to several hundred, and the need of a card catalogue of all the colored plates we possess is now greater than ever. It is not intended to enlarge upon this topic now any further than to say that the Library would be twice as useful as it now is if such a catalogue were in existence; and, that when a sum of money can be spared for the purpose a competent person can be found to do the work.

During the year new locks have been put on the doors of the cases, and the books are now comparatively safe; but the need of more room still stares us in the face; for the relief afforded by raising the table and putting shelves beneath can be but temporary at best. Early in the year a sub-committee, consisting of Mr. Appleton, Mr. Manning, and Mr. French, was appointed to consider the subject, and an abstract of their report is now presented. At the time this committee was appointed the entire front of all the cases was filled with books, and an unknown number were packed in behind those in view, and some were stored elsewhere in the building. These were all counted and found to number, with those added since, up to November 25, 1,157 bound volumes, and 341 pamphlets, besides catalogues. The new piece of furniture

placed in the centre of this floor now contains 250 volumes, and will hold, when full, 400 of the same average size. It is thus seen that over 500 volumes must still be packed away where they cannot easily be seen. There are still many books to arrive, ordered this year, and the Stickney fund is secure for twenty years more. The need, therefore, of a careful investigation of the capacity of this room, when used to the best advantage, is very evident, and your Committee hereby request permission to obtain an opinion and a plan from some professionally qualified person as to the best and most economical way of using the space at our disposal, having reference to the necessary use of the room for meetings, exhibitions, etc.

For the Committee,

W. E. ENDICOTT, *Chairman.*

LIBRARY ACCESSIONS.

Books Purchased.

Hooker, Sir William Jackson. Icones Plantarum. Vols. 5, 6, 7, and 8. [New Series. Vols. 1–4.] 8vo., 200 plates. London: 1842–8.

Forbes, James. Hortus Woburnensis, a Descriptive Catalogue of upwards of six thousand Ornamental Plants, cultivated at Woburn Abbey, with Plans of Forcing Houses, Greenhouses, etc. Royal 8vo., 26 plates. London: 1833.

Regel, Dr. Eduard. Gartenflora. 27 vols., 8vo. 959 colored and other plates. Erlangen and Stuttgart: 1852–78.

Lange, John. Descriptio Iconibus Illustrata Plantarum Novarum vel minus cognitarum præcipue e Flora Hispanica adjectis Pyrenaicis nonnullis. Fasciculi 1–3. Folio, 35 plates. Hauniæ: 1864–6.

Martyn, Joannis. Historia Plantarum Rariorum. Folio, 50 colored plates. London: 1728.

Icones Plantarum Spontè Chinâ, Nascentium, è Bibliothecâ Braamianâ excerptæ. Folio, 30 colored plates. London: 1821.

Edwards, Sydenham. The New Botanic Garden. 2 vols. in 1. 4to., 61 colored plates. London: 1812.

Thornton, Robert John, M. D. The British Flora, or Genera and Species of British Plants, arranged after the Reformed Sexual System. Vol. 1, Text; vol. 2, 342 plates. London: 1812.

——— —— ——. Elements of Botany. 2 vols. in 1, 200 plates. 8vo. London: 1812.

Withering, William. A Systematic Arrangement of British Plants. 4 vols., 8vo., 32 plates. London: 1801.

The Classes and Orders of the Linnæan System of Botany. Illustrated by select specimens of foreign and indigenous plants. 3 vols., 8vo. 239 colored plates. London: 1816.

Commelino, Joanne, M. D., and Casparo. Horti Medici Amstelodamensis Rariorum. 2 vols. Folio, 224 plates. Amsterdam: 1697, 1701.

Reichenbach, H. G. L. Monographia Generis Aconiti Iconibus Omnium Specierum Coloratis Illustrata. 19 colored plates. Leipsic: 1820. Illustratio Specierum Aconiti Generis additis Delphiniis, 72 colored plates. Leipsic: 1823–1827. 2 vols., folio.

Irmisch, Dr. Thilo. Ueber einige Fumariaceen. 4to. pp. 197–316. Plates 1–9. Halle: 1862.

Spicer, Rev. William W., M. A. A Hand-book of the Plants of Tasmania. 16mo., 4 plates. Hobart Town: 1878.

Youmans, Eliza A. The First Book of Botany. New ed. Small 8vo., 297 wood-cuts. New York: 1876.

Plues, Margaret. Rambles in Search of Wild Flowers, and how to distinguish them. 3d ed., small 8vo. 16 colored plates, 87 wood-cuts. London: 1879.

Kerner, Dr. A. Flowers and their Unbidden Guests. With a prefatory letter by Charles Darwin, M. A., F. R. S. 8vo., 3 plates. London: 1878.

Taylor, J. E. Flowers, their Origin, Shapes, Perfumes, and Colors. 2d ed. Small 8vo., 8 colored plates, 143 wood-cuts. London: 1878.

Hanbury, Daniel, F. R. S. Science Papers, chiefly Pharmacological and Botanical. Edited, with Memoir, by Joseph Ince, F. L. S., F. C. S. 8vo., wood-cuts. London: 1876.

Bentley, Robert, F. L. S., and Henry Trimen, M. B., F. L. S. Medicinal Plants. Parts 37–42, in continuation. 8vo., colored plates. London: 1879.

Whitlaw, Charles. New Medical Discoveries, with a Defence of the Linnæan Doctrine, and a Translation of his Vegetable Materia Medica. 2 vols. in 1, 8vo. London: 1829.

Dutt, Udoy Chand. The Materia Medica of the Hindus, compiled from Sanskrit Medical Works, with a Glossary of Indian Plants. 8vo. Calcutta: 1877.

Report on the Herbaceous Flowering Plants of Massachusetts, by Rev. Chester Dewey; and on the Quadrupeds of Massachusetts, by Ebenezer Emmons, M. D. 8vo. Cambridge: 1840.

Emmons, Ebenezer, M. D. Natural History of New York. Part 5, Agriculture. 4to., 41 plates and charts. Albany: 1848.

United States Centennial Commission. International Exhibition, 1876. Reports and Awards, Group IV, Animal and Vegetable products, and the machinery for their preparation. 8vo. Philadelphia: 1877.

Harris, Thaddeus Mason, D. D. The Natural History of the Bible. 8vo. London: 1824.

Johnson, George W. A History of English Gardening, Chronological, Biographical, Literary, and Critical, from the Invasion of the Romans to the present time. 8vo. London: 1829.

Burvenich, Fr., Éd. Pynaert, Ém. Rodigas, Aug. Van Geert, and H. J. Van Hulle. Revue de Horticulture Belge et Étrangère. 5 vols., colored plates and wood-cuts. Gand: 1875–9.

Wood, Samuel. The Bulb Garden. Small 8vo., colored plates and wood-cuts. London: 1878.

——— ——. Multum in Parvo Gardening. 2d ed. Small 8vo., wood-cuts. London: 1878.

——— ——. A Plain Guide to Good Gardening. 3d ed. Small 8vo., 137 wood-cuts. London: 1879.

Buckton, Catherine M. Town and Window Gardening, including the Structure, Habits, and Uses of Plants. 12mo., 127 wood-cuts. London: 1879.

Hobday, E. Cottage Gardening. Small 8vo. London: 1878.

Hofer, A. F. Grape Growing. 8vo., pamphlet; pp. 32. McGregor, Iowa: 1878.

Jenkins, J. The Art of Propagation. 8vo., pamphlet; pp. 32. Wood-cuts. Winona, Ohio: 1878.

Pink, James. Potatoes; How to Grow and Show them. 16mo., 19 wood-cuts. London: 1879.

An Essay on Gardening. Thin 4to. London: 1774.

Harris, Joseph, M. S. Talks on Manures. Small 8vo. New York: 1878.

Simmonds, P. L., F. R. C. I. Tropical Agriculture, a Treatise on the Culture, Preparation, Commerce, and Consumption of the Principal Products of the Vegetable Kingdom. 8vo. London: 1877.

Firminger, T. A. C. Manual of Gardening for Bengal and Upper India. 8vo. Calcutta: 1874.

Transactions of the Highland and Agricultural Society of Scotland. 4th series, vol. 10. 8vo. Edinburgh: 1878.

Ware, Lewis S., C. E., M. E. The Sugar Beet. 8vo., 90 wood-cuts. Philadelphia: 1880.

Whately, Thomas. Observations on Modern [Landscape] Gardening, illustrated by Descriptions. 3d ed., 8vo. London: 1771.

Price, Sir Uvedale. On the Picturesque: with an Essay on the Origin of Taste, and much original matter, by Sir Thomas Dick Lauder. 8vo., 60 wood-cuts. Edinburgh and London: 1842.

Nestel, H. Rosengarten, 1866–1869. 4to., colored plates and wood-cuts. Stuttgart: 1866–1869.

The Winter Garden of the Comte de Kerchove de Denterghem. 8vo. pamphlet, wood-cuts. Ghent: 1875.

Mas et Pulliat, M. M. Le Vignoble. Vol. 3, parts 1–10. Royal 8vo., 80 colored plates. Paris: 1878, 1879.

Annales de Pomologie Belge et Étrangère. Publiées par la Commission Royale de Pomologie instituée par S. M. le Roi des Belges. 8 vols. large 4to., 384 plates, mostly colored. Brussels: 1853–60.

Hogg, Robert, LL. D., F. L. S., etc., Editor. The Herefordshire Pomona, containing Colored Figures and Descriptions of the most esteemed kinds of Apples and Pears. Part 1. Large 4to., 6 col pl. and many wood-cuts. London: 1878.

Lauche, W. Deutsche Pomologie. Parts 1–16. 8vo., 64 colored plates. Berlin: 1879, 1880.

Moore, T. W. Treatise and Hand-book of Orange Culture in Florida. 8vo. pamphlet; pp. 73. Jacksonville: 1877.

Gallesio, George. A Treatise on the Citrus Family. Translated for the "Florida Agriculturist." 8vo., pamphlet; pp. 65. Jacksonville: 1876.

Brown, John Croumbie, LL. D. Forests and Moisture; or Effects of Forests on Humidity of Climate. 8vo. Edinburgh: 1877.

——— —— ——. Pine Plantations on the Sand-Wastes of France. 8vo. Edinburgh: 1878.

Roland, Arthur. Farming for Pleasure and Profit. Third Section. Tree Planting for Ornamentation or Profit, suitable to every Soil and Situation. Edited by William H. Abbott. 8vo. London: 1879.

Grigor, John. Arboriculture, or a Practical Treatise on Raising and Managing Forest Trees, and on the Profitable Extension of the Woods and Forests of Great Britain. 8vo. Edinburgh: 1868.

Timber Trees. 12mo., wood-cuts. No title.

Heath, Francis George. Our Woodland Trees. 2d ed. 8vo., colored plates and wood-cuts. London: 1878.

——— —— ——. Trees and Ferns. Small 8vo., wood-cuts. London: 1879.

Maury, L.–F. Alfred. Forêts de la Gaul et de l' Ancienne France. 8vo. Paris: 1867.

Frochot, Alexis. Traité de Sylviculture Générale. Culture, Aménagement, et Gestion des Forêts. 8vo., 41 wood-cuts. Paris: 1876.

Manteuffel, Baron H.–E. L' Art de Planter. 2d ed. 16mo., 16 wood-cuts. Paris: 1874.

Bagneris, G. Manuel de Sylviculture. 2d ed. 16mo. Paris: 1878.

Williamson, John. Fern Etchings, illustrating all the Species of Ferns indigenous to the Northeastern United States and Canada. 2d ed. Small 4to., 65 plates. Louisville: 1879.

Britten, James, F. L. S. European Ferns. Parts 1–4. 4to., colored plates and wood-cuts. London, Paris, and New York: 1879.

Heath, Francis George. The Fern Paradise. 4th ed. 8vo., photographs and wood-cuts. London: 1878.

Hooker, Joseph Dalton, K. C. S. I., M. R. I. A., etc., and John Ball, F. R. S., M. R. I. A. Journal of a Tour in Marocco and the Great Atlas. 8vo. Wood-cuts and map. London: 1878.

Flower Lore. The Teachings of Flowers, Historical, Legendary, Symbolical and Poetical. 8vo. Wood-cuts. Belfast, London, and Dublin: no date.

Flora Domestica, or the Portable Flower Garden, with Directions for the Treatment of Plants in Pots, and Illustrations from the works of the Poets. 2d ed. 8vo. London: 1825.

Books and Pamphlets Presented.

Pickering, Charles, M. D., Chronological History of Plants: Man's Record of his own Existence illustrated through their Names, Uses, and Companionship. 4to. Portrait. Boston: 1879. Sarah S. Pickering.

Gray, Asa, LL. D., etc. The Botanical Text Book. 6th ed., Part 1. Structural Botany, or Organography on the Basis of Morphology, to which is added the Principles of Taxonomy and Phytography, and a Glossary of Botanical Terms. 8vo. 695 wood-cuts. New York: 1879. The Author.

Watson, Sereno. Contributions to American Botany. I., Revision of the North American Liliaceæ. II., Description of some New Species of North American Plants. From the Proceedings of the American Academy of Arts and Sciences, Vol. XIV., pp. 213–303. 8vo. pamphlet. The Author.

Report upon United States Geographical Surveys West of the One Hundreth Meridian, by Lieut. George M. Wheeler. Vol. 6. Botany. 4to. 30 plates. Washington: 1878. Thomas P. James.

Von Mueller, Baron Ferd. Select Plants Readily Eligible for Industrial Culture or Naturalization in Victoria. 8vo. Melbourne: 1876. The Author.

Wittstein, Dr. G. C. Organic Constituents of Plants and Vegetable Substances, and their Chemical Analyses. Translated from the German, with numerous additions, by Baron Ferd. Von Mueller. 8vo. Melbourne: 1878. The Translator.

Davenport, George E. Catalogue of the "Davenport Herbarium" of North American Ferns: Massachusetts Horticultural Society. 8vo. pamphlet. Salem: 1879. The Author.

Robinson, John. Notes on the Native and Extensively Introduced Woody Plants, of Essex County, Massachusetts. 8vo., pamphlet. Salem: 1879. The Author.

Sargent, Charles S. The Forests of Nevada, with some remarks on those of the adjacent regions. 8vo. pamphlet; pp. 417–426. The Author.

Hodges, Leonard B. The Forest Tree Planters' Manual. Published by the Minnesota State Forestry Association. 8vo. pamphlet. St. Paul: 1879. The Author.

Iowa Horticultural Society; Forestry Annual, No. 5, 1879. 8vo. pamphlet. J. L. Budd.

Annuaire des Eaux et Forêts, pour 1879. 18e année. 18mo. Paris: 1879. The Publishers.

Boston Public Library Bulletin. Vol. 4, No. 1. January, 1879. With List of Books on Trees and Forests. 8vo. pamphlet. Boston: 1879. Arthur M. Knapp, Assistant Librarian.

Rivers, Thomas. The Orchard House. 16th ed. The Rose Amateur's Guide. 11th ed., 16mo. London: 1877. Horticultural Congress Papers: On Raising Seed; Dessert Orange Culture; the Culture of Fruit in Unheated Glass Structures. 8vo. pamphlet. London: 1867. Thomas Rivers, Jr.

The Rose Garden of Oakwood, Clifton, 1879. 16mo. pamphlet. Cincinnati. Privately printed. Henry Probasco.

Thomas, John J. The Illustrated Annual Register of Rural Affairs, and Cultivator Almanac, for the year 1880. Small 8vo. pamphlet. Many wood-cuts. Albany: 1880. Luther Tucker & Son.

Parsons, S. B. The Hardware and Jewelry of Plants. Two Addresses before the New York Rural Club, June 18, 1872, and November 12, 1874. 8vo. pamphlets. The Author.

———— — —. Horticulture, its Past, Present and Future. An Address before the Pennsylvania Fruit Growers' Society, January 16, 1878. 8vo. pamphlet. The Author.

Ohio State Horticultural Society; Twelfth Annual Report, for the year 1878–1879. 8vo. pamphlet. Columbus: 1879. M. B. Bateham, Secretary.

Indiana Horticultural Society; Transactions for 1877 and 1878. 2 vols. 8vo. Indianapolis: 1878, 1879. D. E. Hoffman.

Illinois Horticultural Society; Transactions, New Series, Vols. 11 and 12, for 1877 and 1878. 2 vols. 8vo. Chicago: 1878, 1879. O. B. Galusha, Secretary.

Minnesota State Horticultural Society; Proceedings, Essays, and Reports at the Annual Winter Meeting, held at Minneapolis, January 21, 22, and 23, 1879. 8vo. pamphlet. Minneapolis: 1879. Charles Y. Lacy, Secretary.

Georgia State Horticultural Society; Proceedings at the Second Annual Session, at Macon, August 11 and 12, 1877. 8vo. pamphlet. Atlanta: 1878. P. J. Berckmans, President.

———— —— —— ——. Proceedings at the Third Annual Meeting, at Macon, July 31 and August 1, 1878. 8vo. pamphlet. Augusta: 1879. J. S. Newman, Secretary.

Western New York Horticultural Society; Proceedings at the Twenty-fourth Annual Meeting, held at Rochester, January 22 and 23, 1879. 8vo. pamphlet. Rochester: 1879. The Secretary.

Worcester County Horticultural Society; Transactions for the year 1878. 8vo. pamphlet. Worcester: 1879. Edward W. Lincoln, Secretary.

Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec; Third and Fourth Reports, for 1877 and 1878. 8vo. Montreal: 1878, 1879. Henry S. Evans, Secretary.

Michigan State Pomological Society; Eighth Annual Report of the Secretary, for 1878. 8vo. Lansing: 1879. Charles W. Garfield, Secretary.

———— —— —— ——; Size and Quality in Market and Family Fruits; The Yellow in the Peach; and the Secretary's Annual Statement, for 1878. 3 pamphlets, 8vo. Charles W. Garfield, Secretary.

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Gardener's Magazine.
Journal of Horticulture and Cottage Gardener.
The Garden.
Curtis' Botanical Magazine.
Floral Magazine.
Florist and Pomologist.
Floral World.
Journal of the Linnean Society.
Journal of Botany.
Country Gentleman's Magazine.
Farmers' Magazine.
Journal of the Royal Agricultural Society.
Journal of Forestry.
Field and Forest.

FRENCH. — Revue Horticole.
Revue des Eaux et Forêts.
BELGIAN. — Illustration Horticole.
Flore des Serres.
Belgique Horticole.
Revue de L' Horticulture Belge et Étrangère.
GERMAN. — Botanische Zeitung.
Gartenflora.
AMERICAN. — Country Gentleman.
American Farmer.

PERIODICALS PRESENTED.

New England Farmer.
Massachusetts Ploughman.
American Cultivator.
Scientific Farmer.
American Agriculturist.
Gardener's Monthly.
Vick's Illustrated Monthly Magazine.
Canadian Horticulturist.
Botanical Index.
Bulletino della R. Società Toscana di Orticultura.
California Horticulturist.
Southern California Horticulturist.
American Rural Home.
Maine Farmer.
Prairie Farmer.
Maryland Farmer.
Bulletin of the Essex Institute.
Bulletin of the Torrey Botanical Club.
Botanical Gazette.
New York Weekly Times.
Rhode Island Press.
Boston Evening Transcript.
Boston Daily Globe.
Daily Evening Traveller.
Boston Morning Journal.
Boston Daily Advertiser.
The Nursery.
Familiar Science and Fancier's Journal.

TREASURER'S REPORT,

FOR THE YEAR 1879.

ITEMS OF INCOME.

Balance of Cash on hand, . . .	$318 61	
Received for Rent of Stores, . . .	8,219 97	
" " " " Halls, . . .	6,730 83	
" " Admissions and assessments,	668 00	
Balance of Prizes not drawn, . . .	106 04	
Received from Mount Auburn, . .	2,212 41	
" " from four Exhibitions, .	796 00	
Interest on Bonds, C. B. & Q. R. R., .	105 00	
Borrowed of Publication Committee, .	500 00	
		$19,656 86

ITEMS OF EXPENDITURE.

Salaries, ...	$2,675 00	
Labor, ...	517 90	
Incidentals, ...	237 91	
Heating and Water (less paid by tenants),	621 91	
Furniture and Repairs, ...	125 43	
Taxes, ...	2,844 10	
Gas, ...	1,806 21	
Repairs on Building, ...	398 83	
Fixtures, &c., ...	160 50	
Exhibition Baskets, ...	32 97	
Library accessions (Stickney fund), .	700 74	
" " (Periodicals and Binding),	191 48	
Expenses of four Exhibitions, . .	594 45	
Prizes, ...	1,700 00	
Committee of Arrangements, . .	153 50	
Semi-Centennial Celebration, . . .	48 00	
Amounts carried forward,	$12,808 93	$19,656 86

Amounts brought forward,	$12,808 93	$19,656 86
Committee on Publication and Discussion,	65 00	
" " " (for History),	500 00	
Printing,	718 02	
Stationery and Postage,	127 40	
Interest,	4,714 23	
Donohoe claim,	400 00	
Legal Services,	121 40	
Balance to new account,	201 88	
		$19,656 86

Boston, January 8th, 1880.

E. W. Buswell, *Treasurer:*

We have examined the above account and find it correct, and the balance of cash in hand, two hundred and one 88-100 dollars, as stated.

C. O. Whitmore, H. H. Hunnewell, } *Finance Committee.*

ASSETS AND LIABILITIES.

Assets.

Real Estate, Furniture, and Exhibition Ware, costing		$256,585 56
Library, last year,	$18,067 45	
Added this year,	892 22	
		18,959 67
Bonds of C. B. & Q. R. R., par value,		1,500 00
Total,		$277,045 23

Liabilities.

Mortgage debt at 5½ per cent., payable September, 1883,	$60,000 00	
Loan without interest, payable to Harvard College in 1899,	12,000 00	
Note to Market National Bank,	12,000 00	
Note on call, to Committee on Publication,	500 00	
		$84,500 00
Balance of assets over liabilities,		$192,545 23

By last report our members numbered				900
Life members,	577			
Added,	3			
Commutation,	1			
	—	4		
		581		
Deceased (including several in previous years, not ascertained until this),		18		
			563	
Annual members,	323			
Added,	10			
		333		
Commuted,	1			
Deceased,	8			
Discontinued,	30			
	—	39		
		—	294	
			—	857

Income from the above:		
3 Life members,	$90 00	
1 Commutation,	20 00	
10 Annual,	100 00	
229 Assessments,	458 00	
	$668 00	

It will be seen that the amount deposited to pay prizes, is about thirteen hundred dollars less than the appropriations, and the case would have been the same last year, but for a timely legacy of twenty-five hundred dollars. In saving our halls from misuse, we were subjected to the payment of five hundred dollars in judgment and legal fees; we have also paid five hundred dollars toward the publication of our History, not yet available as an asset. These expenditures go to show that, by a large amount, our finances have not been self-sustaining.

It is not expected that these will occur again, yet similar contingencies may arise at any time, and we are further admonished, by the need of extensive repairs on the building, that our income must be essentially increased, to meet the immediate requirements.

I look forward to more prosperous rental of the halls, and, in the near future, to an advance in store rents, for some measure of

relief. If this hope shall prove unfounded, our liabilities must unavoidably be increased.

The halls have been in greater demand, but at reduced rates, and increased expenditure for gas, labor, etc. The division and arrangement of our rooms, not intended primarily for the many and widely different purposes for which they are used, will show good cause for large labor bills. The same cause operates in the necessity for passing into and through our Library room, by those who have the halls in use. This I regret as much as can any one, and would rejoice with those who now complain, if the necessity did not exist. But, under present conditions, I see no remedy, save by parties aggrieved placing the Society in such circumstances as to require no aid to its finances by renting its halls. I believe, with you, that the true use and purpose of the room consists in its quiet and orderly adaptation to the use of the Library, and to the regular and social meetings of our members. To that end, I shall continue in the exercise of judicious care and watchfulness, keeping in view the wants of the Society in all its departments, hoping and trusting that none will seriously suffer, until the arrival of that happy future when all the parts shall unite in a harmonious one.

E. W. BUSWELL, *Treasurer.*

Boston, January 20th, 1880.

Dr. *Massachusetts Horticultural Society, in account with the Proprietors of the Cemetery of Mt. Auburn.* **Cr.**

For Sales and Improvements within the Cemetery for the year ending December 31, 1879.

Cost of filling up and improving land at Mt. Auburn, for the year ending December 31, 1879; the Massachusetts Horticultural Society being charged with their proportion of the same:			By Sales in January,			
Grading Stone Farm,		$1,028 62	" " " February,		1,371 50	
" Cyclamen Path,		27 00	" " " March,		15 00	
" Hazel Path and Mountain Avenue,		375 00	" " " April,		612 50	
			" " " May,		3,243 00	
One quarter of	$1,430 62	$357 65	" " " June,		1,295 00	
Balance due Massachusetts Horticultural Society,		2,212 41	" " " July,		415 00	
			" " " August,		615 00	
			" " " September,		1,542 75	
			" " " October,		1,297 50	
			" " " November,		600 00	
			" " " December,		250 00	
			" Net amount of receipts from Receiving Tomb,		352 00	
					$11,722 25	
			Less paid for Graves in Public Lots, repurchased,		42 00	
					$11,680 25	
			Deduct for Annual Expenses,		1,400 00	
			Mass. Horticultural Society, one-fourth part of		$10,280 25	$2,570 06
		$2,570 06				$2,570 06

E. & O. E.

December 31, 1879.

H. B. MACKINTOSH, *Treasurer.*

MASSACHUSETTS HORTICULTURAL SOCIETY,

To THE PROPRIETORS OF THE CEMETERY OF MOUNT AUBURN, *Dr.*

For one-fourth part of the following expenditures for grading lands, during 1879:

Stone Farm.		
259½ days, men,	$454 12	
191½ days, man and horses,	574 50	
		$1,028 62
Cyclamen Path.		
9 days, man and horses,		27 00
Hazel Path and Mountain Avenue.		
159 days, men,	278 25	
32¼ days, men and horses,	96 75	
		375 00
		$1,430 62
One-fourth part,		$357 65

MOUNT AUBURN, December 31, 1879. J. W. LOVERING, *Supt.*

I certify the foregoing to be a true copy of account of improvements for the year 1879, rendered by the Superintendent.

H. B. MACKINTOSH, *Treasurer.*

CELEBRATION

OF THE

SEMI-CENTENNIAL ANNIVERSARY

OF THE SOCIETY.

Although the season of 1878 was the fiftieth of the Society's existence, the semi-centennial anniversary was not celebrated until Friday, September 12, 1879, the last day of the Annual Exhibition. The first constitution of the Society provided for the observance of the anniversary on the third Saturday in September of each year; and, accordingly, the first celebration was held on the 19th of September, 1829, but six months after the organization of the Society, and the anniversaries, and annual exhibitions held simultaneously, have been numbered from this. It was intended to celebrate the semi-centennial anniversary in connection with the Rose Show, in June, almost exactly fifty years from the incorporation of the Society; but a severe accident to Ex-President Marshall P. Wilder, who had accepted the invitation to deliver the address, necessitated a postponement, and hence it occurred that the fiftieth anniversary was celebrated in connection with the fifty-first annual exhibition.

The arrangements for the celebration were in charge of a special committee, consisting of the President, William Gray, Jr., Chairman, Ex-Presidents Marshall P. Wilder and William C. Strong, and the Committee of Arrangements for the Annual Exhibition. Invitations to join in the celebration were sent to his Excellency, Governor Thomas Talbot; his Honor, Frederick O. Prince, Mayor of Boston; Charles L. Flint, Secretary of the State Board of Agriculture; Thomas Motley, President of the Massachusetts Society for Promoting Agriculture; Hon. Robert C. Winthrop, Hon. John C. Gray, one of the first board of vice-presidents; Professor Asa Gray, Rev. William W. Newton, and Rev. A. B.

Muzzey; to the four surviving founders of the Society, John B. Russell, of Newmarket, N. J., Andrews Breed, of Lancaster, Henry A. Breed, of Lynn, and John M. Ives, of Salem, two of whom, Messrs. Russell and Ives, were present; and to the presidents of all the State Horticultural Societies in the Union, eighteen in number. The celebration, which commenced at three o'clock, was in the upper hall, the flower stands having been removed from the centre of the room, and seats placed for the accommodation of the audience. The exercises were: 1st, music by the Germania Band; 2d, prayer by the chaplain, Rev. A. B. Muzzey; 3d, music by the band; 4th, oration by Hon. Marshall P. Wilder; 5th, music by the band; 6th, Auld Lang Syne, in singing which the audience were requested to join; and, 7th, benediction. The audience were much gratified at the appearance in public of the venerable ex-president for the first time since the accident before referred to. The oration was an able and interesting summary of the history of the Society by one who had been conversant with and had taken an active part in its work almost from the beginning. It is printed in full at the close of this account of the occasion.

The celebration closed with a subscription dinner at Young's Hotel. The members and invited guests met in the reception room at five o'clock, and after an hour spent in social intercourse, and in congratulation that they were enabled to join in celebrating the fiftieth anniversary of the Society, passed into the dining room. President Gray retired when the cloth was removed, and the remaining portion of the festivities was presided over by Vice-President Charles H. B. Breck, who introduced it by saying: —

Gentlemen of the Massachusetts Horticultural Society, — Owing to the indisposition of our honored President, I am unexpectedly called upon to preside on this interesting occasion, — the Semi-Centennial Anniversary of the Massachusetts Horticultural Society,—an event which we celebrate with hearts full of gratitude that the Society, today, after fifty years, is rich and prosperous, with hands ready and willing to continue the work commenced by those well remembered ones who have passed away from the scenes of their labors here on earth, and who, we trust, are now in the enjoyment of the Gardens of Paradise. But I will not detain you longer, as I see many here who are ready to speak, and will make this festival interesting, and long to be remembered.

The Chairman then introduced Samuel H. Wales, President of the Rhode Island Horticultural Society, as the representative of the Horticultural Societies of sister States. Mr. Wales responded in the following speech :—

Mr. President, — I congratulate the officers and members of the Massachusetts Horticultural Society upon the success of their semi-centennial exhibition. Your Society is one of the oldest Horticultural Societies in the United States. Through its influence, unceasing labors, and liberal expenditures it has been a blessing to the people of every State in the Union. Its influence has aided materially, especially in New England, in causing the wilderness to blossom with the rose. It has encouraged people of other States and cities to form similar associations, and thus to educate the masses of the people up to a more refined taste for the beautiful in nature, and a more sincere thankfulness to the Creator for the infinite variety and beauty of the flowers of the field which are spread out before us upon every hand, each one of which, however small and apparently insignificant, is perfect in the minutest point. But its cultivation and development is left to man. When the Creator commanded Noah to "go forth, multiply, and replenish the earth," he put into operation certain unchangeable laws, principles, and forces, which are designed, with man's assistance, to produce all of the results, improvements, and advancements, in science and knowledge which we behold in our day and generation. "God created the heavens and the earth," but he did not build ships or make plows or hoes, or any other implement of husbandry. He left it to man to plan out details, and to invent and manufacture tools and implements to assist him in his struggle for existence, and to aid him in his desire to improve his condition and to go forward and cultivate and beautify the earth in conformity with the supreme law.

Man begins first to provide for his necessities by building a rude shelter, and as he acquires the ability he beautifies his residence and grounds, and improves the quality of his fruits and vegetables. To this desire and striving there is no end. Compare the farm-houses and the grounds around them, even the humblest cottages throughout New England, with their appearance twenty years ago, if you wish to know what good the Massachusetts Horticultural Society and other similar societies have done by educating the people up to a higher appreciation of the benefits to be derived from a comparatively few hours of labor, and a trifling expenditure in planting

flowers and shrubbery around their dwellings. Such adornments have a soothing effect upon the minds of the occupants, and a pleasing and cheering effect upon the passers-by, and thus add materially to the value of the estate. The cultivation of small fruits, and the improvement of their quality, have already proved a great blessing to producers and consumers throughout New England.

I am highly pleased to see so large a number of old men — some of whom have been members of your Society since its organization — present and taking an active part and manifesting a lively interest in its welfare and prosperity, and as there are before me so many older persons who are much better qualified to address you on this occasion than I am, allow me to bid the Massachusetts Horticultural Society God speed in their noble work of beautifying the earth and benefiting mankind.

John B. Russell was next called on as the representative of the founders of the Society, and responded as follows :—

Gentlemen, — While I feel much gratified at having been invited to this semi-centennial celebration, permit me to say that I am not accustomed to speech making, and am now too old to learn the art. But as I am the last survivor of the corporators named in the charter of the Society, and took an active part in its organization and its early meetings, I will say a few words. I know pretty well who were its early friends and founders, and may be excused for mentioning them. Gen. Dearborn, as its first President, by his labors and correspondence, gave it a high standing at once ; John Lowell was its early and constant friend ; Samuel Downer was indefatigable in securing members, and successful in searching for new native varieties of fruits, particularly pears ; and Robert Manning of Salem, whose modesty was only excelled by his extraordinary talent in identifying the different varieties of fruits, the nomenclature of which was then in almost inextricable confusion, was always present, with large collections of rare fruits, correctly labelled. In fact, there was never an appeal from his judgment on a point of nomenclature. He was the first man in America who investigated the origin and history, and gave the true name of the world-renowned Bartlett pear, now so generally grown in the United States, and in Europe as far as the shores of the Mediterranean. Capt. Daniel Chandler, Benjamin V. French, Cheever Newhall, Ebenezer Wight, Robert L. Emmons, Elijah Vose, Henry

A. Breed, William Kenrick, John Prince, Edward M. Richards, and Samuel G. Perkins were active members in the early history of the Society. The public were indebted to these gentlemen for the general dissemination of the Porter apple, the Downer and Belle et Magnifique cherries, the Duchesse d' Angouleme, Harvard, Andrews, Clapp (not the modern Clapp's Favorite), Cushing, Dix, Wilkinson, and Heathcot pears, then, and for several years, of great reputation and merit, though some of them may have been superseded by the fine varieties since introduced from Europe by Mr. Manning, Col. Wilder, and Mr. Hovey.

Remember I am speaking of the very early history of the Society. Of its grand success for the last thirty or forty years, there are many gentlemen present who know more than I do. Not unlikely some of the younger members here may live to attend the centennial of the Society, in 1929. If so, may they remember the labors of its pioneers, in its "day of small things," as well as the magnificent results after Col. Wilder was chosen its President, in 1840. During his admirable administration of eight years, occurred those grand triennial festivals, in 1842, 1845, and 1848, which threw into the shade every anniversary celebration that had preceded or has followed them. He inspired such confidence in the stability and usefulness of the Society as to secure for it larger and more numerous donations than had ever before been received, which, with its income from Mount Auburn, made it the most richly endowed of any similar institution in the world. May its prosperity continue and increase; may its success in the next fifty years be as much beyond our anticipations today, as its present achievements are beyond the conceptions of its founders!

William C. Strong, one of the Ex-Presidents of the Society, being called on by the Chairman, said:

Mr. Chairman, — I am surprised that you should have passed older and more honored names and called upon me so soon. I belong to the second generation of this Society. Other men labored and we have entered into their labors. Perhaps, however, we are in a position better to appreciate the magnitude and the value of the labors of our predecessors than they themselves. They wrought better than they were aware. Who of them could have guessed the widely diffused and general influence flowing from this Society, which we can so plainly see impressed upon the homes of this whole community? As we are this day called to review their work and

to express our gratitude for what has been accomplished, we may be half inclined to feel that little is left to be done; that the impulse has been given so decidedly in the right direction that we can now trust to the cultivated taste of the public, and that we may no longer expect to witness such improvements as have taken place during the past half-century. But admitting to the full extent what has been done in the past, let us not for a moment indulge the thought that the influence of this Society, or the art of horticulture, has reached the zenith. Nay rather, we are but upon the threshold of scientific culture. Who shall say what wonders are yet to be revealed in the art of hybridizing; in the specific feeding of plants; in the selection of superior stocks for engrafting, and in other advances now little dreamed of by the public? May we not believe that our art gives as bright a prospect for invention and discovery as other arts which are making such giant strides in this age? Let us be full of courage, and while we honor the work of our predecessors, let us see to it that "their trophies do not permit us to sleep."

Benjamin P. Ware, President of the Essex Agricultural Society, was next called on, and said:

Mr. President,— Considering the importance of the results accomplished by the Massachusetts Horticultural Society, as portrayed in the address of our venerable and esteemed Ex-President, it is very fitting that we should meet together in this social manner to celebrate our semi-centennial anniversary. I am pleased with the remarks of the gentleman from Rhode Island, and fully agree with him in regard to the elevating influence of horticultural pursuits upon the character of men and women. Other things being equal, I should place more confidence in those persons whose tastes and inclinations lead them to the cultivation of fruits and flowers, than in those who have not such tastes. I feel, while engaged in these pursuits, or in the cultivation of the heavier farm crops, that I am a co-worker with the great Creator of all things, and in closer communion with Him than at any other time. In this way I am elevated in my aspirations, and made purer and better. I love those most who love flowers. I love to be in the company of such men as we meet here today; and, as I live, I will be present at the celebration of the next semi-centennial anniversary of the Massachusetts Horticultural Society.

The Chairman then said, I will now call on one of our late vice-presidents, who is blessed not only with a love of flowers, but with the faculty of seeing and describing them under poetic aspects,— Henry Weld Fuller.

Mr. Fuller spoke as follows:

Mr. Chairman,—Your call for me, I presume, is intended as a compliment to the honorable office lately held by me in this Society. It may be, however, that you have thought it would be the last of me, and all the better for being the last, as the notes of a dying swan are said to be the sweetest. Nevertheless, none of us should "show the white feather," and I will not dodge a response.

This is our semi-centennial celebration; and yet we are so fortunate as to have with us now one of the original and distinguished founders of our Society. Other persons too, are here who, for many years, have been conspicuous in carrying on the work which they so well commenced; men, who have contributed, not a little, to the spread of a refined taste and a love of beauty throughout the country; men who can remember "the lay of the land," and the condition of things half a century ago, and who have nobly exerted themselves to help on the improvements of the age. But how few of us, or of them, now realize fully the greatness of our time! Sir, we are living, and have lived in the most wonderful of all the ages! It has been our privilege to witness, in the last fifty years, the greatest advance ever made in every department of science and invention. Even in history and geology, what progress has been made! We know more today of Nineveh and Babylon, and of Herculaneum and Pompeii, than our predecessors for two thousand years. More than one-half of the fifty-one known metals have been discovered in our day. The discoveries of gold, silver, copper, and iron enable this country to produce annually far more than all the rest of the world; and we have converted the most elastic of all substances into an almost metallic hardness, using it for jewelry and ornaments, as well as for clothing and shelter. In our day, steam engines, steamboats, and railroads have been invented and constructed. There are now in the United States more miles of railway than would thrice encompass the globe. Old ideas of time and space are exploded. Distant regions are made our neighbors; and days are melted into hours by our rapid transit. The peaches and strawberries of other States are fresh upon our tables; and oranges and lemons are as cheap as apples. What

would our fathers have thought, in our youth, of some of our ocean steamers, measuring as many thousand tons as the ships of fifty years ago did hundreds, and crossing the ocean in one-third of the olden time, not only without wind, but often against the wind. What would they have thought of guns that would penetrate a foot into plates of solid iron? What of our nitro-glycerine and giant powder, our torpedo boats and submarine exploits?

Is not this an age of romance? I am aware that no age regards itself as an age of romance, for we see our own faces only by reflection. But have we not equalled the age of fable and fairies? If we have invented the most terrible of destructives, have we not also annihilated pain and counterfeited or outwitted death itself, so that now, at the bidding of the surgeon, one can lie down to pleasant dreams and awake to find his limbs cut clean from his body, or the cataract peeled from his eyes, without his knowledge? The introduction of ether alone stamps this as an age of romance! In our youth when we called up the stones from the earth to give us pictures, and lithography became an art, how curious and wonderful it seemed. But now we call the sun from the heavens to copy, in an instant, any object, with a truth and exactness which no human hand can approach, and with an inimitable delicacy of touch. Can fairy fingers do better work than our daguerreotypes, heliotypes, and electrotypes? What ministers of nature and of truth are here! Again, behold the man in submarine armor, walking or working beneath deep waters, and reporting from below to those above, and inspecting, measuring, or constructing what he pleases, coöperating with his partners in the air. See him again, sailing in his jacket for a boat, and rivalling the porpoise in his gymnastics. Is there no romance in these? The dentist will now offer you prettier, if not better, teeth than nature often gives, and our surgeons will trim you into form, without torture, as easily as the boy can make a whistle from a green willow.

But what shall we say of electricity and its uses. When Franklin first brought down the lightning and bottled it for use, what a sensation passed over the civilized world. But now we use it daily as a messenger of thought,—bidding it to fly in a moment through thousands of miles, and to return forthwith with a reply. We rap upon our tables, and our orders go across the ocean and under the ocean to India, China, or Japan, and in an hour the answer comes, Your cargoes are engaged and orders filled. The telegraph is the invention of our day.

When old Munchausen told the story of the herald's trumpet,—wherein his breath was frozen up so that when the thaw came, out flew the calls, summonses, or challenges, uttered months before,—we thought he blew rather a windy blast from his imagination. But what was that compared with Edison's phonograph, which puts a speech into a cylinder today and turns it out, at any future time, exact in tone and accent just as it was uttered? Did Munchausen ever say that he could sit in his parlor and enjoy a concert in progress fifty miles away? Did he ever claim that he could have a private talk with a friend when more than twenty leagues apart, and converse with him as if their chairs were touching each other? We have thought the swift journeys of the fairies to enchanted castles far away and then returning many miles in a night, were fabulous; but what were they to the lightning messengers of our time, which go and come more quickly? Verily, the days of romance are ours.

The discoveries and inventions of the last fifty years, however, have not been confined to such extraordinary matters. Machines for ploughing, sowing, reaping, mowing, raking, and gathering in the harvests, have been invented and operated to the great advantage of the husbandman. By means of these, and of our railways, the vast prairies and broad acres of the West have been redeemed, and the whole country bound together in bonds of mutual profit and advantage. New fruits, flowers, and foliage plants are constantly coming to us and being disseminated through the continent, and who can tell the end of our wonders? Can we look at a garden of gay gladioli, rustling in the sun and bowing to the breeze, and not liken them to a group of fairies? Can we look upon a bed of fancy coleuses, and believe that fairy fingers have not fluted or painted them? Look at our catalogues of fifty years ago and compare them with those of today. Mark the new comers and ask by whom they were introduced and when they arrived, and you will then thank God for the beauty that our associates have brought us. I need not—I cannot enumerate them. Figure up, if you can, the importations of exotics, and the hybrids produced in our time, and tell me where would be the beauty of our landscapes and gardens if these were removed. It is not saying too much for our Society to acknowledge that its members have done the public vast service by their efforts. They have left a bright, phosphorescent track wherever they have been, and our homes and our hearts have been

gladdened by their beautiful productions. Through them many strange beauties have been brought to us.

Let us then take courage from the past, and not forget its lesson in the future. Let us not solely pursue the apples of gold and neglect the apples and pears of the orchard, or the peaches and berries which our pioneers have provided and left for our increase and improvement. Would that our worthy departed friends, who wrought so faithfully for the public good, could be here again to look at the fruit of their labors and to cheer us onward. Every individual is bound to do something for his race. All progress is the result of individual enterprise. No man liveth to himself. We are in a moving mass and we must move too. Unless we collapse in a vacuum, and do nothing and become nothing, we must touch others near us. Let then the touch be worthy of us, and of some remembrance. The steps already taken are helps to further advancement, and I hope we may use them as such, so that when the next half of the century shall be complete, our successors may rejoice as we have rejoiced, in contemplation of work well done.

The love of country depends upon our surroundings. The more lovely our homes the more we esteem them. If these are pleasing and satisfactory, contentment follows; and contentment is the strength of a republican government. Where refinement abounds peace is established, and outbreaks cannot occur. Beauty and refinement abide only with order. Go on, then, and spread them broadcast over the land. Sunshine dispels the shadows, and a contented spirit lightens the life.

Samuel B. Parsons, of Flushing, N. Y., one of the most eminent horticulturists in the country, and Samuel Downer, a son of one of the founders of the Society, were the next speakers, but we are unable to present any report of their remarks.

Rev. A. B. Muzzey, the chaplain of the day, was next called on as the representative of the clergy, and said:

Mr. President,—For many reasons this semi-centennial celebration of the Massachusetts Horticultural Society is to me of special interest. My membership dates back very near to its incorporation—to the year 1844. During all these years, with the exception of three, when I lived in another State, I have been a constant attendant on its meetings, and have done what I could to advance its high objects. So long as I had a fragment of land to call my own

I contributed to its exhibitions, and enjoyed its constantly improving displays in the noble art and science of horticulture. Its long line of successful competitors has given me a pleasure above the reach of envy.

It has surprised me that so few of my own profession have joined our ranks, and that clergy as well as laity have not competed for all these honorable prizes. No occupation is purer than the culture of the soil. It was fitting that our first parents should be placed in a garden. And the healthful, moral, and every way high tone of its culture ought to have secured them against that sad fall which, the great Milton affirms, brought "Death into our world, and all its woes."

Hoping and believing that the next half-century will witness equal progress with the past in its practical, honorable, and every way elevating work of advancing, in this and foreign lands, the cultivation of flowers, fruits, and vegetables, and thus promoting this grandest and most useful occupation of mankind, I will say, in conclusion, God prosper the Massachusetts Horticultural Society now and evermore!

The Chairman next said:—

I will now call upon one whose name has become a household word throughout our own country and Europe, through his writings; as the editor and publisher of the Magazine of Horticulture; for his successful attempts—the first in this country made on scientific principles—to improve the strawberry; for his fine camellias, and for his ardent love and enthusiasm for gardening in all its branches — Charles M. Hovey, whom I know you will be glad to welcome.

Mr. Hovey replied:—

Mr. President, — I am gratified at your very complimentary allusions, and only regret that at this late hour, and after so many able remarks, I am prevented from fittingly replying, or from doing justice to an occasion like this—the fiftieth anniversary of our Society—the half-century of its growth. Well do I recollect, sir, its origin, and its earlier days. I am reminded more forcibly of them when I see before me one who was such an energetic worker in its organization, and whose executive ability at that period was only equalled by his enthusiasm,—who has lived to commemorate with us this semi-centennial anniversary, and to see this Society in its

present flourishing condition, in the possession of a large and commodious hall,—with one of the largest and best horticultural libraries in the world, and a membership larger, I believe, than any similar association in this country, and scarcely excelled abroad. I have, on a previous occasion, when dedicating Horticultural Hall, given you much information respecting its earliest years, and need not repeat it now, but I can never forget how much we are indebted to Gen. Dearborn, Zebedee Cook, John Lowell, and others, for their unselfish labors in its organization, or for their continued and unremitted efforts to maintain the high character and usefulness of the Society. Those were indeed golden days, and no man of that time, but Gen. Dearborn, could have given it the eclat or insured the renown which it has now attained. A review of the flowers that now embellish our gardens, compared with those of fifty years ago, would reveal the important fact that scarcely any of the leading species and varieties had been introduced at that period, or even many years afterwards. The whole class of what are now called foliaged plants, which add so much to the splendor of our exhibition today, and to the adornment of our grounds, were then unknown. The Coleus, Achyranthes, Alternanthera, and numerous other plants and bulbs, that now decorate our gardens, or, arranged in ribbon lines and carpet patterns, are so attractive and so gorgeous in their brilliant coloring, mark a new creation, so to speak, the outcome of the researches of enthusiastic, venturous, and energetic botanists in penetrating before unreached climes, and the result of the persevering efforts of hundreds of zealous cultivators in both hemispheres.

But I need not follow this up. You, sir, and all around me can fill up the period. Having recently revisited Europe, after a lapse of many years, I could see how much has been accomplished there in nearly forty of the fifty years of the life of the Society up to this time, and I think I fall short of the truth when I say that as greatly as I admire the enthusiasm of Englishmen in the culture of plants and flowers, and rich as that country is in magnificent parks and gardens, our progress has been no less rapid, though our task has been less directed to the higher departments of horticultural art.

The half century has closed. Well may we be proud of the achievements of our Society,—proud of the noble men who heralded it to the public, and watched over its infancy,—proud of their successors who have never swerved from the path so well marked

out by its leading spirit; proud of our labors in the establishment of Mount Auburn Cemetery; proud of the beautiful building which the Society now owns, and proud of the men who came forward in those perilous days of our country to give us that material aid which alone could enable us to rear such a noble structure—a monument of a higher civilization and an enduring record of the refined pleasures of rural art.

Hon. Francis B. Hayes, whose name had been presented by the Nominating Committee as President of the Society for the ensuing year, was next called on as "the coming man," and spoke as follows:—

Mr. President,—It gives me sincere pleasure to be permitted on this semi-centennial anniversary of the Massachusetts Horticultural Society, to sit at the same table with those who, as distinguished proficients in the science and art of horticulture, and who, eminent as practical workers in that delightful and useful field of labor, have contributed so much to elevate and honor the Society. To attain eminence one must be interested in his calling, and always be diligent. No one could exhibit the beautiful plants and flowers and fruits which have decorated the tables of the Horticultural Society during the present week, without proving thereby his great industry and devoted love of the ennobling pursuit in which we are all deeply interested.

I rejoice, sir, in the success of the Massachusetts Horticultural Society; that it has been raised to a proud preëminence over most other kindred societies in the world; and I am confident that by the wise counsels and vigorous efforts of its members, it will attain to a still higher position of usefulness and honor.

But, Mr. President, this is the time and occasion for us to rest, and quietly enjoy the fruit of our labors. This is not the seed time, attended with anxieties and cares as to what and how we shall sow and plant and fertilize for the best future results. We are now here with scarcely a remembrance of these troubles of the spring time. We are summoned, by the abundant fruits of our labors, to the harvest supper,—which we can partake of with rational enjoyment. Stimulating thoughts, our physicians say, are not good for us while we are at a table spread as the one is before us, and so I will not violate the rules of health, nor mar the festivities of the evening, by suggesting what we should do to sustain and add to the glory of the Society; but with profound

gratitude let us now bear in mind what has been accomplished by the Society in the past fifty years.

We will cherish the memories of Dearborn, Lowell, Bigelow, Stickney, and many other warm friends of the Society, who have gone to their reward. We are sincerely grateful that many are now living, through whose enthusiastic labors and liberal beneficence, the noble objects of this Society have been especially promoted. We will not forget among the number the able gentlemen of the Executive and Finance Committees, to whom the Society is very largely indebted, and many others surrounding me, who deserve our highest commendation. But, while I forbear to name those present, I may be permitted to speak of one who is necessarily absent from this pleasant meeting. I know you will all unite with me in wishing a much longer life of happiness to him who is the connecting link between the past and the present, — the upright merchant; the doctor of philosophy, who is in active sympathy with all students in their scientific pursuits; the wise legislator, who has presided with dignity and ability over the higher branch of the Legislature of this Commonwealth; the zealous lover of historical research, who is at the head of the New England Historic-Genealogical Society; the eminent pomologist and florist; the distinguished Ex-President of our Society; the octogenarian orator of the day, — the Honorable Marshall P. Wilder.

Brief remarks were made by other gentlemen, and the speeches of all were received with an interest and approval which was testified by frequent applause, and this was especially bestowed on the close of Mr. Hayes's address, in which he eulogized the services of Ex-President Wilder.

The following letters were received from gentlemen who were invited, but were unable to be present: —

PENNSYLVANIA HORTICULTURAL SOCIETY,
HORTICULTURAL HALL,
PHILADELPHIA, September 8, 1879.

Gentlemen, — Many thanks for your very kind invitation to be present at the celebration of the semi-centennial anniversary of the Massachusetts Horticultural Society, and also at the dinner at Young's Hotel, on the 12th instant.

I regret very much that previous engagements will deprive me of the pleasure of participating with you in this joyous festival. Sincerely trusting that your truly useful Society will be able to continue its beneficent labors for many half-centuries to come, I am,

Very truly yours,

W. L. SCHAFFER, *President.*

WILLIAM GRAY, JR., Esq., *President.*
ROBERT MANNING, Esq., *Secretary.*

NEW YORK HORTICULTURAL SOCIETY,
NEW YORK, September 6, 1879.

WILLIAM GRAY, JR., *President Massachusetts Horticultural Society:*

Dear Sir, — I regret that my engagements are such as will prevent my acceptance of the invitation of the Massachusetts Horticultural Society to dine on Friday, September 12. Please convey to the gentlemen my regrets, and my thanks for their kind consideration.

The horticultural field is the world; and I hope that the members not only of the Massachusetts Horticultural, but the members and officers of all the horticultural societies in the United States, will unite upon such a display of the beautiful, accompanied with music, as will be an attraction to the family home, and leave bad rum to perish by the wayside. I believe that if a taste for the beautiful could be cultivated to its highest extent, thousands of young men now on the road to ruin might and would be saved. The love of the Beautiful, as presented in the Flower and its accompaniment, Music, is antagonistic to the use of the pistol and the knife.

Very truly yours,

WILSON G. HUNT, *President.*

MARYLAND HORTICULTURAL SOCIETY,
BALTIMORE, September 9, 1879.

WILLIAM GRAY, JR., Esq., *President Massachusetts Horticultural Society:*

Dear Sir, — I duly received your invitation to attend the celebration of your semi-centennial anniversary on the 12th instant, and have delayed sending an answer in the hope that I should be able to accept it, but I exceedingly regret to find that business engagements will prevent my leaving home at the time.

I beg to offer on behalf of our Maryland Society, our hearty con-

gratulations on your having attained to so important and interesting a period in the history of your Society, and to express the hope that its long career of eminent usefulness may be continued in full health and vigor for at least fifty years longer.

I am very truly yours,

W. H. PEROT, *President.*

OHIO HORTICULTURAL SOCIETY,
NORTH BEND, OHIO, September 5, 1879.

WILLIAM GRAY, JR., *President of the Massachusetts Horticultural Society:*

My Dear Sir, — Your polite invitation to unite in the celebration of your semi-centennial anniversary is received, and highly appreciated. To be remembered and recognized by such a noble institution as that over which you preside, is fully appreciated by your correspondent.

A previous engagement with one of our foremost Western horticulturists will prevent the personal response to your invitation. Be pleased to present to the members of your Society the best wishes for their prosperity and continued usefulness, and believe me,

Very truly yours,

JOHN A. WARDER, *President.*

IOWA HORTICULTURAL SOCIETY,
DES MOINES, IOWA, September 9, 1879.

ROBERT MANNING, *Secretary Massachusetts Horticultural Society:*

Dear Sir, — Your kind invitation to attend and participate in the celebration of your semi-centennial anniversary reached me yesterday.

Lack of time and over many cares forbid my acceptance. Our unfinished young State is full of hard work. We feel that too much remains to allow a pause for celebration, but we can rejoice with you in your labor accomplished.

Yours has been a noble work and you have richly earned your congratulations and your banquet, with the feast of wit to come after. If any men in the world deserve banquets I think it must be horticulturists, for their work makes only for good, for health, for beauty.

Wishing you all the happiest of reünions, the brightest of wit, and the best of wines, I beg to subscribe myself,

Yours most heartily,

C. L. WATROUS, *President.*

WISCONSIN HORTICULTURAL SOCIETY,
GREEN BAY, September 8, 1879.

MR. WILLIAM GRAY, JR.:

Dear Sir, — Your card, containing an invitation to be present at the semi-centennial anniversary of the Massachusetts Horticultural Society, is at hand. Nothing would delight me more than to break away, and meet with you upon such an occasion.

But I must deny myself the pleasure, great as it would be. My own business needs my almost constant care, but in addition to that I am connected with some public matters in our county and city that can neither be put off nor delegated to others. I trust and expect that your celebration will be a grand success. We of the West look to the Old Bay State almost as the paradise of the lovers of horticulture, and hope that the time will come when the citizens of our grand Northwest will be your friendly rivals in the delightful pursuit. Still, you need not fear our excelling you in the race for some years to come. We have some noble men engaged in the business in this State. We hold two conventions yearly, and we are to hold a meeting this week in Madison to try and make arrangements for a series of conventions to be held during the coming winter in different portions of the State. Can we make it a success? I should like to have your better opinion and more experienced judgment in regard to it.

Thanking you for your kind invitation, I remain,

Yours truly,

J. M. SMITH, *President.*

TENNESSEE HORTICULTURAL SOCIETY,
OFFICE OF THE SECRETARY,
NASHVILLE, TENN., September 10, 1879.

WILLIAM GRAY, JR., *President:*

Sir, — I am directed by the President and members of the Tennessee Horticultural Society to return thanks to the Massachusetts Horticultural Society for the honor of an invitation to your semi-centennial celebration and dinner. Our President, Judge D. F.

Wilkins, expresses his extreme sorrow that his legal engagements prevent his availing himself of your kindness. We all hope you may have a happy and prosperous celebration.

I am, sir, your obedient servant,

GEORGE S. BLACKIE, M. D., Ph. D., *Secretary.*

BROOKLINE, September 10, 1879.

My Dear Sir, — I am honored by the invitation of the Massachusetts Horticultural Society for the 12th instant.

I fear that it will be out of my power to be present at the dinner, but I hope to make my appearance as an old honorary member, and to hear the address of your venerable Ex-President at the Horticultural Hall at three o'clock.

Your Society has accomplished a great work for horticulture during the half-century of its existence, and has a right to celebrate the semi-centennial anniversary with the highest satisfaction and pride. Believe me, dear sir,

Very sincerely yours,

ROBERT C. WINTHROP.

ROBERT MANNING, Esq., *Secretary.*

LYNN, September 10, 1879.

ROBERT MANNING, *Secretary Massachusetts Horticultural Society:*

Dear Sir, — I received from you an invitation to attend the celebration of the semi-centennial anniversary of our Horticultural Society, which is to be held on the 12th instant. I am very sorry that I shall not be able to be present at the dinner.

On looking at my diploma, I find it dated June 12, 1829. In the fifty years that I have been a member I have felt and taken great interest in fruit and flowers, both for myself and others. Fifty-six years ago there were but four varieties of pears and very few trees in Lynn, and but few flowers. Now there are upwards of thirty-five thousand pear trees, bearing almost every known variety of fruit, and a flower garden may be seen in almost every man's yard. I built the first greenhouse, and for some years it was the only one in town, but now there are upwards of fifty, and many of them are quite large and very nice. I helped to set out the first shade trees in streets then, and now almost every street has shade trees on each side. I commenced business here in 1819, when I was twenty-one years of age. Since that time I have opened and

graded thirty-four streets at my own expense. I am now eighty-one years and five months of age, and enjoying good health.

Truly yours,

HENRY A. BREED.

Letters expressing regret for inability to attend, and cordial desires for the prosperity of the Society, were also received from Governor Talbot; Prosper J. Berckmans, President of the Georgia Horticultural Society; Thomas Motley, President of the Massachusetts Society for Promoting Agriculture; Professor Asa Gray, Hon. John C. Gray, and Andrews Breed. Mayor Prince was present at the exercises in Horticultural Hall in the afternoon, but not at the dinner.

ADDRESS

BY

Hon. MARSHALL PINCKNEY WILDER,

ON THE

SEMI-CENTENNIAL ANNIVERSARY.

Members and Friends of the Massachusetts Horticultural Society:

Ladies and Gentlemen,—Assembled as we are under the auspices of the Massachusetts Horticultural Society, and in its own temple, to commemorate the completion of its first half-century, it is natural to take a glance at the way over which we have travelled.

From the days when Peregrine White planted the first apple tree, and Gov. Endicott the first pear tree, within the limits of our State; from the time when Blackstone planted his orchard in Boston, or Gov. Winthrop his garden on Governor's Island, — Massachusetts has been famous for her gardens. But the progress of horticulture was for a long time slow and feeble. It is eminently one of the arts of peace; and we find, that, after the close of the Revolution, the first organized attempt in this country to advance the progress of agriculture (which includes horticulture) was made by the formation of the Philadelphia Society for Promoting Agriculture, which was soon followed by the formation of the Massachusetts Society for Promoting Agriculture. In like manner, the close of the last war with England was followed, in 1818, by the organization of the first horticultural society in the country,—that of New York. The next society, that of Pennsylvania, was organized in November, 1827, and is therefore the oldest society in the country which has had a continued existence to the present day.

The progress and improvement of horticulture since the beginning of the present century had been more rapid than before; and it was doubtless a perception of this fact, in connection with the belief that its advancement might be made still more rapid, and the example of other societies, which led to the formation of the

Massachusetts Horticultural Society. The subject had been much discussed among lovers of horticulture, and on the 24th of February, 1829, a bitterly cold day, when the streets were piled with snow, a meeting of sixteen gentlemen convened at the office of Zebedee Cook, Jr., 7½ Congress street, for the purpose of instituting a horticultural society. The Hon. John Lowell, who stood at the head of the horticulturists of the State, was chosen to preside; and Mr. Cook was secretary. Besides these, there were present H. A. S. Dearborn, Samuel Downer, John B. Russell, Enoch Bartlett, Cheever Newhall, Robert Manning, John M. Ives, Andrews Breed, and Henry A. Breed. To the best of the recollection of the last named gentleman the other five founders of the Society were William Kenrick, Jonathan Winship, Robert L. Emmons, Benjamin V. French, and William H. Sumner. On the 17th of March the constitution and by-laws, drawn up by Gen. Dearborn, were adopted, and officers were chosen. On the 12th of June it was "enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, that Zebedee Cook, Jr., Robert L. Emmons, William Worthington, B. V. French, John B. Russell, J. R. Newell, Cheever Newhall, and Thomas G. Fessenden, their associates and successors, be, and they hereby are, incorporated under the name and by the description of the Massachusetts Horticultural Society, for the purpose of encouraging and improving the science and practice of horticulture, and promoting the amelioration of the various species of trees, fruits, plants, and vegetables, and the introduction of new species and varieties." Thus, like the morning sun, whose rays, sending forth their healthful and benign influences, light up the landscape with crystal dews, floral gems, luscious fruits, and golden harvests, there arose a new era in the science of American horticulture, which has not only extended its influences all over our own continent, but has reached, enriched, beautified, and energized other portions of the world. Although not so early in its inception by more than a year as the Pennsylvania Horticultural Society, it was the first *incorporated* horticultural society on this continent, with the exception of the New York society before mentioned. Its first premium list was issued in June, 1829; while the first list of the Pennsylvania society was adopted in January, 1830.

Of the sixteen persons who attended the meeting on the 24th of February, 1829, four — Messrs. Russell and Ives and the two

Messrs. Breed — are still living; while Mr. Russell is the only survivor of the eight named in the charter.

From its first president down to the present time, the Society has been fortunate in securing gentlemen to fill the chair, all of whom have been cultivators of the soil, and lovers of rural art. Dearborn, Cook, Vose, Walker, Cabot, Breck, and Stickney have gone before us; but their works do follow them; while, thanks to a kind Providence! Hovey, Hyde, Strong, Parkman, Gray, and he who now addresses you, are still spared to labor in carrying out the beneficent designs of its noble founders. And permit me, without detracting from the enterprise and ability of other pioneers, to say that to Henry Alexander Scammel Dearborn, — the first president, whose name will ever be held in grateful remembrance, — more than to any other man, are we indebted for the prestige and popularity of the Society, at home and abroad, in its early history. Others there are whose names will be gratefully remembered, and cherished as co-laborers and benefactors of the society, among whom Robert Manning of Salem, — the great leader and reformer in American pomology, who during his life time collected nearly two thousand varieties of fruits, — Samuel Downer of Dorchester, ever alert on the search for new native fruits, the Kenricks of Newton, the Winships at Brighton, John Prince, Enoch Bartlett, Elias Phinney, George W. Pratt, Benjamin V. French, Aaron D. Weld, Aaron D. Williams, and David Haggerston, may be mentioned as preëminent.

The Society immediately entered upon the work for which it was established, by opening a correspondence with leading European horticulturists, by laying the foundation of a library, and in every other way which the active mind of President Dearborn, who was foremost in every good work, could devise. And be it ever remembered that to this Society the community is indebted for the foundation and consecration of Mount Auburn Cemetery, — the first rural cemetery in the country. This was combined with an Experimental Garden, some of whose products were shown at the exhibitions of the Society. Although it was found expedient to relinquish the control of the cemetery to another corporation, its establishment has proved of the highest advantage to the Society, in ways not anticipated at the time when it was founded, which was but about two years from the incorporation of the Society.

But the method which the Society has ever found most advantageous for the promotion of its objects is the exhibition of the

products of the garden in its various departments; and a glance at these exhibitions will be both appropriate and interesting.

The first exhibition of which we have any record was on the 20th of June, 1829, when there were about thirty varieties of roses on the tables. As the season advanced, the exhibitions increased in extent and beauty; that of August 1 surpassing, we are told, any preceding show. August 29, Samuel R. Johnson brought Washington plums measuring six inches and a quarter in circumference, and weighing nearly three ounces each. The Annual Exhibition was confined to the fruits and flowers displayed on the table at the Exchange Coffee House, where the anniversary dinner was provided; but it is said "the show of fruits and flowers generally was probably never surpassed in New England." The Bloodgood and Urbaniste pears, with others once highly prized, but which have now been superseded, were shown for the first time. No prizes were awarded this year; but on the 15th of May, 1830, A. Aspinwall received the prize for the best six tulips; and George W. Pratt, the prize for the best six *Ranunculus Asiaticus*, — the first premiums ever awarded by the Society. July 24, E. Phinney sent Moorpark apricots six inches in circumference, which received the premium. The Williams, Benoni, Porter, Hubbardston Nonsuch, and Gravenstein apples, made their appearance for the first time. A single specimen of the Duchesse d'Angoulême pear was produced by Samuel G. Perkins, and pronounced superior to the St. Michael. Fruit was at this time a more prominent object than flowers. The only flowers of which any considerable variety was exhibited were the geranium, rose, and chrysanthemum. Forced vegetables were shown by Mrs. Gore's gardener. Capt. Smith of Quincy presented "a kind of manure from Peru, called by the Spaniards *guano*."

The exhibitions of flowers, which had been largely of hardy herbaceous plants, began in 1831 to show a decided increase in greenhouse plants, such as camellias, *Musa coccinea*, *Hoya carnosa*, *Maranta zebrina*, etc. The Dearborn's Seedling pear was shown from the original tree. June 15, 1833, the Messrs. Winship contributed a hundred and thirty varieties of roses.

The Annual Exhibition in 1834 was held in Faneuil Hall, and was the first on the plan which has every year since been continued, and fulfilled the high expectations which had been formed. The *Gladiolus Natalensis*, or *psittacinus*, was shown by Samuel Sweetser,

and the Marrow squash by John M. Ives. March 7, 1835, the first Indian azaleas were presented by Thomas Mason of the Charlestown Vineyard. July 2, 1836, Marshall P. Wilder exhibited *Gladiolus floribundus*. The Belle Lucrative and Beurre Bosc pears were shown by Robert Manning at the Annual Exhibition. In 1837, the first orchid mentioned, *Oncidium flexuosum*, with ninety-seven expanded blooms, came from Marshall P. Wilder. The Large Yellow Bough apple, and the Rostiezer and Louise Bonne of Jersey pears, were shown for the first time. The *Phlox Drummondi* was first seen this year. June 9, 1838, W. Kenrick showed *Wistaria Consequana*, which had just been ascertained to be hardy. The *Verbena Tweediana* was extensively cultivated and greatly admired. The rhubarb and tomato were coming into general cultivation at this time. Hovey's Seedling strawberry was first shown June 29, 1839. The dahlia had been growing in popularity; and on the 23d of September, 1840, the first Grand Dahlia Show commenced, and continued four days. Nearly three thousand blooms were displayed, besides asters and other flowers. August 11, 1841, *Lilium lancifolium* was shown by Marshall P. Wilder, and pronounced by the Committee "a superb plant;" but its hardiness was not known until some years later.

In 1842, cultivators having learned from Mr. Haggerston's discovery, to which he was stimulated by a premium of one hundred dollars offered by the Society, how to prevent the ravages of the rose-slug, the exhibition of roses was finer than ever. The Elizabeth pear was shown by R. Manning, and the Tyson by William Oliver. In this year the anniversary of the Society was celebrated by the first Triennial Festival. It was held at Concert Hall, which on this occasion presented a scene of unsurpassed beauty. The question of admitting ladies to the tables had been discussed; and objections were made on the ground that, if we had the ladies, we could not have wine; but the better judgment prevailed, the wine being cast out, and women being kept in. And here I am reminded that when, in 1830, "women's rights" were incidentally discussed on a proposition to elect as honorary members Mrs. Gov. Gore, Mrs. Dix, and Mrs. Griffith of New Jersey, all known for their zeal in forwarding the objects of the Society, some thought it of doubtful expediency, because a woman in the garden made great trouble as long ago as the days of Adam. Gen. Dearborn, however, silenced all cavillers, and the candidates were admitted; and

now ladies are elected, not merely honorary, but immediate members; and not only are our discussions and other meetings graced by their presence, but their contributions to the exhibitions are among the most beautiful and attractive in the halls. The Bon Silene rose was first exhibited May 20, 1843. The Lawrence and Doyenné Boussock pears, and the Mother, Ladies' Sweet, and Northern Spy apples, were first brought before the Society in the same year. August 24, 1844, sixteen dishes of Washington plums were shown by as many contributors. Some of the largest specimens averaged three ounces and one-eighth in weight. The next week there were seventy dishes of plums, in thirty varieties. The Beurre d'Anjou pear was shown by Marshall P. Wilder at the Annual Exhibition.

This brings us to an epoch in the history of the Society, — the erection of the first Horticultural Hall, — which suggests a brief review of what may be called the first era in the history of the Society. It was especially noted for zeal in the cultivation of fruit, and most of all of the pear. The leading cultivators sought to bring together in their collections all known varieties, to test their qualities and their adaptation to our climate. The fruit growers of our day have but a faint idea of the vast amount of care, time, labor, and money, spent in making the collections from which has been obtained the information, now so easily accessible to all, as to the most desirable varieties for cultivation. And not only were the best varieties unknown, but there was much confusion and perplexity in the nomenclature of fruits. To clear up this confusion by careful comparison was another object in making large collections of fruit. This work, in its various branches, was so diligently begun and pursued during this first era of the Society, as to form its most prominent feature. It was an era of collections.

The lovers of flowers were hardly less diligent in collecting every novelty in their branch of horticulture. The enthusiasm in the cultivation of the dahlia eclipsed even the love for the rose. Every new variety announced in European catalogues was imported, sometimes at enormous cost; and special shows were held for the display of the finest specimens. The number of varieties of roses had increased so that those who could remember when there were but from six to ten varieties, limited in their time of flowering to the month of June, could count them by hundreds; and some of them were in bloom nearly the whole year. Next in importance to

the dahlia and the rose as a floral gem in the open air, came the hyacinth. The tulip was much more largely grown than it is now; and beds containing thousands of bulbs, and protected by houses built to screen them from the sun and bad weather, were shown in perfection. Among greenhouse plants, the collections were particularly rich in camellias. It was during this era that ocean steam navigation was established, giving a powerful impetus to horticulture by the facilities which it afforded for the interchange and concentration of the fruits and flowers of every climate, many of which found a place in the orchards and gardens of New England. And not only in New England, but in distant States, might be seen fruits and flowers whose existence could be traced to the influence of the Massachusetts Horticultural Society.

I have thus briefly summed up some of the principal events in the history of the first era of the Society. Prosperous and progressive as it had been during its first fifteen years, we come now to an event which marks an epoch, and introduces a new era in its history,—the erection of the first Horticultural Hall, which was, so far as is known, the first building ever erected for the use of any horticultural society in the world.

The corner stone was laid on the 14th of September, 1844, with appropriate services, in the presence of a large assembly, on the site of the old Latin school-house, now covered by the east end of the Parker House. He who now addresses you performed the service of depositing the leaden casket of coins and documents, and pronouncing a brief address on the rise and progress of the Society to that day. Of the fifteen members of the Building Committee, only Mr. C. M. Hovey and myself still live. The hall was dedicated on the 15th of May, 1845, with an address by Hon. George Lunt, and was formally opened to the public at the exhibition on the 31st of the same month. In the words of Mr. Hovey, in his address on laying the corner stone of the present edifice in 1864, "From that time the progress of the Society has been more rapid, and the influence felt throughout the entire country. New life and fresh vitality were infused into the Society. It had the sympathy, as it had the substantial aid, of the public. It was appreciated as its founders intended it should be. Its objects seemed all at once to become apparent." The possession of a home of its own made it a permanent institution in the community. The increased taste for horticulture, which had led to the erection of a hall, was, in its

turn, stimulated by the possession of this beautiful building. The amount of money appropriated for prizes—which was in 1829 only $188, and had been gradually increased to $460 in 1844—was in 1845 raised to $1,200; and the exhibitions became so extensive, that it is difficult to select the objects most worthy of notice. Bouquets were exhibited in great profusion. There were on the 21st of June, 1845, no less than thirty-three, from eight contributors, and in a multiplicity of forms,—round and flat vase bouquets, round and flat hand bouquets, double-faced flat hand bouquets, circular bouquets, etc. At the Annual Exhibition, prizes were offered for the best designs; and a floral temple, a Gothic monument, and a Chinese pagoda, each from fifteen to eighteen feet high, were exhibited, besides smaller designs, such as a harp, a plough, an eagle, and a Newfoundland dog covered with pressed black hollyhocks and gray moss and carrying a basket of flowers. The *Stephanotis floribunda*, "a very rare and elegant hot-house climber," was shown by J. M. Thorburn & Co., of New York.

The beginning of the next year (1846) was signalized by awards, of the value of fifty dollars each, for the production of the seedling camellias of Mr. Wilder, the Queen of the Prairies rose of Samuel Feast of Baltimore, and the Hovey's seedling strawberry. The La Reine and Souvenir de Malmaison roses were shown. The exhibitions of fruit were stimulated by the offer of special prizes by John P. Cushing. In 1847 the Prospective Prizes were established, and medals were procured to be awarded as premiums. At this time, and for some years previous, there was a general enthusiasm in regard to the hybridization of plants, particularly the camellia and dahlia, and also in regard to the introduction of new varieties. As an illustration of this enthusiasm, we may mention that two hundred and fifty dollars was paid for a plant of *Camellia Floyii*, and ten guineas for a plant of the Hope dahlia. The displays of camellias were very extensive: on the 12th of February, 1848, Marshall P. Wilder exhibited thirty-three varieties; Hovey & Co., sixteen varieties; and J. L. L. F. Warren, twelve varieties. The new hall of the Society having been found too small for the Annual Exhibition it was held in Faneuil Hall. Marshall P. Wilder exhibited two hundred varieties of pears; Robert Manning, two hundred and sixty varieties of pears, and one hundred and eighteen of apples; John Fisk Allen, thirty-three varieties of foreign grapes; and Samuel W. Cole, one hundred varieties of potatoes. The first

special Rose Show was held in June, 1849. The next year the Garden Committee was established. Hovey & Co. made the first of those beautiful shows of azaleas and rhododendrons which have been so much admired. John P. Cushing exhibited magnificent specimens of pears from walls and under glass. At the Annual Show the collection of one hundred and forty-one finely grown varieties of apples from B. V. French was an exhibition of itself. In 1851 the *Weigelia rosea* was introduced by Marshall P. Wilder, and the Champion of England pea by Azell Bowditch; the Jenny Lind strawberry was shown by the originator; John P. Cushing exhibited a collection of thirty-three varieties of strawberries; André Leroy of Angers, France, sent a collection of one hundred and sixteen varieties of pears, including the Doyenné du Comice, besides other fruit. In 1852 Messrs. Winship exhibited the *Dielytra spectabilis*. The Annual Exhibition was, in this and the two succeeding years, held under a tent in the Public Garden or the Common, giving ample space for a grand display. The year 1853 was made memorable by the exhibition by John Fisk Allen, of that extraordinary plant, the *Victoria regia*. The Concord grape, and the Dana's Hovey and Beurre Superfin pears, were first shown; and the first Prospective Prize was awarded to Hovey & Co. for their seedling cherry. The interest in native plants revived under the extensive exhibitions of Dennis Murray and others. Ignatius Sargent sent several bunches of Black Hamburg grapes, weighing upwards of four pounds each, and one of seven pounds and a half. The first hybrid grape, originated by J. F. Allen, and bearing his name, was shown by him in 1854. From this time we may date the interest in the improvement of native grapes, which has resulted in adding so many new kinds to our catalogues. This year also was marked by the exhibition, from Marshall P. Wilder, of the *Cissus discolor*, one of the harbingers of the endless variety of ornamental-foliaged plants now so generally cultivated and admired. The American Pomological Society, in the formation of which our Society had been primarily instrumental, met in Horticultural Hall; and the members contributed largely to the exhibition of fruits in the pavilion on the Common. The Music Hall being completed the next year, commended itself as a most desirable place for the Annual Exhibition, which was held there for three successive years, and frequently since. In 1856 the *Clematis Jackmanni*, and other varieties, were shown by Edward S. Rand, Jr. May 2, 1857, the

Deutzia gracilis was shown by T. G. Whytal for the first time, though it had been introduced several years before. The Versaillaise currant was exhibited by W. C. Strong. Messrs. Graeff, of New York, sent to the Annual Exhibition the first Wardian cases. The Society returned to the old custom of an address at the Annual Show, which was delivered by Rev. Henry Ward Beecher.

The exhibitions through the season of 1858 were held monthly, instead of weekly, as before. Hovey & Co. exhibited at one time twenty-five varieties of summer pears, and, at another, one hundred and twenty-five varieties of verbenas. At the Annual Exhibition this year were seen the first indications of the taste for ferns and lycopods, the beautiful forms of which are now found in every greenhouse.

In 1859 the Wilson's Albany strawberry was shown; the committee remarking that "the specimens did not, on trial, commend themselves for their quality." August 20, Hovey & Co. displayed a hundred and thirty varieties of annuals, and, at the Annual Exhibition, the first extensive collection of variegated-leaved plants, and also of coniferous plants. Orchard-house culture was gradually becoming more general. This year was the last in the hall which had been the home of the Society for fifteen years; the estate having been sold to Mr. Parker. The weekly shows were kept up at Amory Hall the next season, with much interest. The hybrid perpetual roses showed the results of increased attention. June 30, Oliver Bennet exhibited fifty Crawford's Late peaches, some of which measured more than a foot in circumference. The Clapp's Favorite pear was shown for the first time. A special prize for Bartlett pears at the Annual Exhibition brought out fifty-five competitors. This year witnessed the culmination of the great collections of pears, Marshall P. Wilder and Hovey & Co., each exhibiting three hundred dishes, — a larger number than has since been shown. The dahlia was slowly going out of favor; but at the Annual Exhibition, there were a "number of neat, pretty little baskets of flowers, showing in what dainty contrasts flowers could be arranged, and what pretty effects could be produced by skilful fingers."

The season of 1861 was one of the most unfavorable ever known both for fruits and flowers; yet, at the Rose Show, bushels of flowers were taken away for want of room to show them. The Roger's hybrid grapes were first shown. The *Eucharis Amazonica*,

Lapageria rosea, and *Caladium argyrites*, were among the notabilities in plants. 1862 was as favorable for an abundance of fruits and flowers as the preceding year had been unpropitious, and was noted for the appearance of the *Lilium auratum*, and for the ninth session of the American Pomological Society. The next year came the *Coleus Verschaffelti*, and the first of those beautiful displays of seedling gladioli which now form so attractive a portion of our exhibitions. In 1864 the Hybrid Perpetual roses were recorded as very large and perfect. At the Annual Show, there were eighteen or twenty baskets of flowers (some arranged with exquisite taste), a collection of twenty-five varieties of native grapes, and one of a hundred and two varieties of beans.

This closes what we have designated the second era in the history of the Society. It will be seen, that, as respects the pear, the work of *collection* during this era culminated, and the work of *selection* had well progressed. It was during this period that two of our most valuable native pears, the Dana's Hovey and Clapp's Favorite, were originated by members of the Society, and first made known through its exhibitions. A great number of varieties of strawberries had been tested, including all the European kinds of high repute, most of which had proved not to be adapted to this climate. We have noted the commencement of the excitement in regard to native grapes, and the advent of the Concord, the Allen's Hybrid, and other improved varieties, and the share of our Society in the establishment of the American Pomological Society, two of whose meetings and exhibitions were held under the auspices of the former in this era.

In the flower department we have noted the introduction of the Deutzias, the Weigela, the Dielytra, and the *Lilium auratum*. A period which includes the introduction of such beautiful and popular plants must be deemed a most important one; yet we might add the names of hundreds more only less conspicuous than these. Among the greenhouse plants perhaps the most extraordinary acquisition was the *Victoria regia;* and, though not now cultivated here, such is not the case with the multitudes of variegated-leaved plants, the introduction of which took place at about the same time with the flowering of the *Victoria*, and the taste for which has been continually increasing. Among flowering plants we can only allude to the improvement in the azalea, the fuchsia, the gloxinia, and other greenhouse plants. In the garden we notice the multi-

plication of beautiful roses, and especially the advent and improvement of the Hybrid Perpetual class. Next to the rose, the gladiolus showed most advance, but hardly more than that in hardy rhododendrons and azaleas, in tree and herbaceous pæonies, in the phlox, the astor, the petunia, and the hollyhock; while the taste for the dahlia — once next to the rose in popularity — was on the decline. Nor would we overlook the revival of interest in the exhibition of native plants. In new seedlings originated here, the greatest advance was shown in the gladiolus; but the phlox continued to be a favorite subject of improvement; and the hardy rhododendrons, Japan lilies, petunias, and many others on a smaller scale, were the subjects of successful experiments.

Closely connected with the cultivation of flowers is the growth of a better taste in regard to their arrangement in bouquets, baskets, and other designs; for which we are largely indebted to the lady members of the Society. The large designs which show the skill of the architect rather than the taste of the florist are justly banished from our halls. The establishment of the Committee on Gardens marks the progress, not only of improvement in the culture of fruit, flower, and vegetable gardens, but in the laying out of ornamental and pleasure grounds with artistic effect. It was during this era that the Hunnewell Triennial Premiums were established by the generous patron of horticulture whose name they bear, to promote the application of science, skill, and taste to landscape gardening.

In the kitchen garden we have noticed the zeal of cultivators in testing large collections of potatoes, beans, squashes, and turnips, and the improved varieties introduced; while the specimens exhibited showed a marked improvement in cultivation. The tomato, in its change from a soft and wrinkled state to the smooth and solid varieties now exclusively grown, is a most striking example of improvement.

This era was especially noted for its brilliant festivals in Faneuil Hall, graced by large assemblages of ladies and gentlemen. Among those who thus met to do honor to the Society were many of the most distinguished persons in our land, of whom we may remember Daniel Webster, Edward Everett, William H. Seward, Andrew Jackson Downing, Caleb Cushing, Robert C. Winthrop, Morton McMichael, and Madam Alexander Hamilton. These festivals gave great popularity to the Society, and assisted in bringing to its treasury increased donations, the interest of which

was to be distributed in prizes to promote the objects of the Society. The mention of these generous gifts at once recalls to your minds the honored names of Appleton, Lowell, Lyman, Bradlee, Hunnewell, and French.

The twenty years of this era were years of prosperity to the Society; and, though they include several of the most inauspicious seasons known since its foundation, the number of exhibitors at the shows was so large, that a contribution of a comparatively small portion of the products of each garden and greenhouse afforded, even in the most unfavorable years, an interesting and instructive exhibition. And if, in such a year, there was the appearance of retrogression, it was but temporary, and the return of a more genial season restored all that had been lost, and added much more.

And now we come to what I have termed the third, or present era in our history.

The growth of the Society, and its influence, both at home and abroad, had been constantly increasing, so that the want of a larger and more commodious building was year by year more strongly felt. This need resulted in the purchase of the present site, and the erection of this beautiful structure, the corner stone of which was laid on the 18th of August, 1864, the building being dedicated on the 16th of September, 1865. Appropriate addresses were delivered on both these occasions by President Charles M. Hovey, who, through all the stages of the project, had been its firm and constant friend. The erection of this building seemed to be the crowning glory in the history of the Society; but few are aware of the difficulties encountered in bringing the plan to a successful issue. The incurring of a large debt was, in the minds of some of our best friends, of doubtful expediency; but, thanks to an indomitable and immutable friend, Charles O. Whitmore, this objection was overcome, and to him, more than to any other man, are we indebted for this temple of horticulture. Not only did he adhere with firmness and perseverance to the plan of the Committee, until all its members signed the report in favor of erecting the new hall, but he also, with Mr. Hunnewell and Mr. Cheney, presented the statues which adorn its walls.

In this third era we see the result and development — the flower and fruit — of the good seed sown through all the previous history of the Society; a result so rich, that we can but glance at it: and

indeed we have less need for detail here than in the earlier years, for it is within the recollection of even the younger members of the Society, and, moreover, it will be found fully related in the history of the Society, soon to be published.

In this era occurred the Rhododendron Show on the Common, the most successful horticultural exhibition ever held in Boston. Who that saw it does not still retain the remembrance of its surpassing beauty? And for those who saw it, as well as for those who had not that privilege, we have a memorial in the fund which accrued from it, and which was presented to the Society by the generous friend, Mr. Hunnewell, who conceived and carried out the plan to encourage the cultivation of his favorite flower.

In this era, too, occurred the gift of Ex-President Stickney, for the increase and benefit of the library, which has resulted in placing within reach of every member of the Society the most valuable collection of books on horticulture and kindred subjects to be found in this country, if, indeed, it can be equalled in the world. Nor must we omit in this connection the bequest of the valuable horticultural and botanical library by which that long-tried friend of the Society, John Lewis Russell, who had served it so many years as Professor of Botany, testified his remembrance and regard.

Here, also, we may appropriately refer to the work of the Society in collecting and disseminating horticultural information by the lectures and discussions inaugurated during this era, under the presidency of Mr. Strong, to whom we are most indebted for the success attained; and by the publications of the Society, which, though beginning with its foundation, have of late attained an importance, which, excepting the period from 1847 to 1852, they did not possess in any previous era. And this leads me to speak of the growth, in our country generally, of horticultural literature, which, at the organization of the Society, could hardly be said to exist. In the formation of this literature the members of this Society, and especially Ex-President Hovey, to whose long series of volumes we point with pride, may claim to have had their full share.

To come more directly to gardening: the era which we speak of was noted for the development of carpet and ribbon gardening, which gave to our gardens a brilliancy and richness unknown before. This was rendered possible by the introduction of numbers of new varieties of Pelargoniums, Coleus, Achyranthes, Centaurea, and of

other species before unknown, and at the same time stimulated the introduction and production of plants suited to the effects at which it aims. With it came sub-tropical gardening, imparting to our lawns and pleasure-grounds, by the use of Palms, Tree-ferns, Agaves, Musas, Dracænas, Caladiums, and similar plants, an air of refinement and distinction before unknown. It appears to me that the introduction of these and the multitude of ornamental-foliaged plants, both hardy and tender, which now enrich our gardens, is the most characteristic feature of the present era in horticulture. Our wealth in the rich forms of tropical foliage, and the skill of our cultivators, were revealed in the exhibitions of 1873, 1874, and 1875, when the spacious Music Hall appeared transformed into a tropical garden. The names of half the species which have been introduced would extend this address beyond all reasonable limits. The mention of Bougainvillea, Cyanophyllum, Anthurium, Allamanda, Sanchezia, Dalechampia, Medinilla, Dracæna, Alocasia, Croton, Pandanus, Phormium, Phyllotænium, and Begonia, calls up at once the recollection of hundreds of others, rich in flower and foliage beyond any thing dreamed of when this Society was formed. The same may be said of the curious and delicate forms of greenhouse ferns: yet these are rivalled by the species from our own woods, which have been during this era so thoroughly studied, and brought into cultivation. Hot-house orchids were hardly known here half a century ago; yet at almost every exhibition now they surprise and delight us by some new and wonderful form, or gorgeous color. In the out-door garden, the development of the Hybrid Perpetual roses, in their endless varieties of form and color would alone have signalized this era; yet we have seen equal improvement in the Rhododendron, while the new Deutzias, Hydrangeas, Viburnums, the *Azalea mollis*, and the Aquilegias, are representatives of plants which are destined to find a place in every garden. That our cultivators have not merely introduced, but originated new plants, is witnessed by the magnificent Lilies of Mr. Hovey and Mr. Parkman, the Dracænas of Mr. Butler and Mr. Harris, the Pæonies of Mr. Richardson and Dr. Kirtland, the Carnations and Gladioli of Messrs. Hyde, Richards, Crafts, and others, and numerous seedling Lilies, Coleuses, Irises, Phloxes, Delphiniums, Pelargoniums, and other flowers almost weekly presented.

The extent of the cultivation and improvement of particular

flowers is testified by the special exhibitions to which the Rose, the Rhododendron, the Pelargonium, the Indian Azalea, and the Chrysanthemum, have given their names. The winter exhibitions, especially of roses, have of late grown in extent and beauty; the exhibitions and discussions having exerted a mutually beneficial effect.

It is to be noticed as another prominent characteristic of the horticulture of this era, that the enjoyment of flowers is not confined to those who cultivate them as luxuries of the greenhouse and conservatory. The yearly increasing market for flowers evidences a wide-spread taste for them in the community; while the multiplication of cheap glass structures for their production strikes every one who makes the slightest inquiry into the progress of horticulture. Equally striking is the fact that large quantities of forced roses, and other greenhouse flowers produced by the skill of our florists, are sent by them to distant parts of the country, whose natural advantages are far superior to ours. But we believe that the disadvantages under which we labor are more than counterbalanced by the stimulus which they have given to cultivators; for it is conceded that horticulture *as an art* is carried to higher perfection in Massachusetts than in any other part of our country.

"But ever on the bleakest rock
We bid the brightest beacon glow,
And still upon the thorniest stock
The sweetest roses love to blow.

So, on our rude and wintry soil
We feed the kindling flame of art,
And steal the tropic's blushing spoil
To bloom on Nature's icy heart."

In the fruit department we seem to have approached more nearly to the limit of improvement, and our cultivators are exacting in their requirements of a new candidate for a place in their gardens or orchards; yet we must not omit that extraordinary pear, the Souvenir du Congrès, the seedlings of Messrs. Clapp (particularly the fine variety named in memory of Frederick Clapp), the many seedlings by Dr. Shurtleff, Mr. Dana, and others; Mr. Fenno's Norfolk cherry; the new strawberries and grapes originated by zealous cultivators, and the many raspberries, gooseberries, blackberries, and other small fruits introduced. The fame of the Society has attracted from distant places collections of fruit to be submitted

to the judgment of its committees and members, and we have had the satisfaction of examining the productions of orchards from Nova Scotia to Nebraska and California. By the exhibition and meeting of the American Pomological Society, held under the auspices of our Society during the era of which we speak, and by the part taken in the pomological department of the Centennial Exposition, we may claim a share in the advancement of fruit growing throughout the country. The advance and extension of fruit culture are shown in the enormous and yearly increasing quantities sold in our markets, and not less is the improvement in the quality and varieties of vegetables. The exportation of fruit has also attained such proportions that I must not omit an allusion to it here, as largely due to the influence of this Society.

But horticulture includes more than the finest fruits or flowers, or the neatest and most skilful cultivation. In its application to landscape gardening it becomes a fine art. To use the words of Mr. Winthrop, "It is in its most comprehensive sense emphatically the Fine Art of common life. It is eminently a Republican Fine Art. It distributes its productions with equal hand to the rich and the poor. Its implements may be wielded by every arm, and its results appreciated by every eye. It decorates the dwelling of the humblest laborer with undoubted originals by the oldest masters, and places within his daily view fruit-pieces such as Van Huysum never painted, and landscapes such as Poussin could only copy." It was intended by the founders of the Garden and Cemetery at Mount Auburn that these grounds should ultimately offer an example of the best style of landscape or picturesque gardening. This design has been realized not only in Mount Auburn and other cemeteries, but in such private grounds as those of Messrs. Hunnewell, Payson, Sargent, Gray, and Hayes, which, as the finest specimens of art, with their beautiful lawns, and rare trees and plants, are among the strongest attractions either to our own residents, or to visitors from abroad.

And now, my friends, permit me in conclusion to say, that, among the various invitations which I have received to address my fellow-citizens, I have never been honored with one which I more readily accepted, or more highly appreciated, than the invitation to address you on this occasion, coming as it does from those with whom I have labored for so many years. Never have I more heartily joined with you than I do now in commemorating the

fiftieth anniversary of our Society; and I am quite sure there is no one here who does not rejoice sincerely in this occasion.

I have summed up briefly, and as well as impaired health would admit, a sketch of the results of a half-century's work. To do justice to the subject would extend this address far beyond the limits of your patience; but I trust that I have given you some idea of the work accomplished by this Society. This is the harvest we have reaped. These are the fruits we have gathered. But many are the seeds which we have sown which have not yet germinated, and which will bless the world long after we have passed away from it. With many of us the sun is fast sinking behind the horizon of life; but the fruits of your labors will continue to enrich with golden hues and spicy odors the tables of posterity for ages after we have dropped, like the fruits of autumn, to rise no more.

One after another of us will pass away. Few of those present will attend the anniversary of this Society at the close of the half-century upon which we have entered; but our Society shall still live on and prosper. Others will rise up, and carry on the good work; and as they come with fruits and flowers — the results of their labors — to adorn these halls, they will remember those who have gone before. Thus from generation to generation may this temple continue to stand, and honor the names of those who erected it.

Commemorating as we do by this celebration the completion of the first half-century of the existence of our Society, it is natural to look forward to the future of its history. When we reflect upon what has already been accomplished—how from its small beginnings it has risen to its present usefulness and renown—who does not feel that its future is yet to be equally prosperous and glorious?

The seed which has been sown,

> "Though it long lies buried in the dust,
> Shall not deceive our hope,"

but will continue to spring up for years to come. Much as has been accomplished, still greater results are in store for posterity; and as time advances, still richer acquisitions in fruit and flower will gladden the eyes, and charm the senses; and, as you and your posterity shall come up to these altars with your votive offerings, let all remember with gratitude those who laid the foundations of this Society, and those who have so actively coöperated with us to advance the objects of our institution, and have brought it forward

to its present prosperous condition. As the members from time to time congregate in these halls, think you not, that, if these portraits could speak from the canvas, they would bless you for your works? Methinks they now speak to us, and rejoice with us in the good which this institution has bestowed on the world.

And now, remembering those who have gone before, let us extend a hearty welcome to those who are to succeed us.

Welcome to our homes, and the beautiful grounds which we have made and planted for your happiness! Welcome to our fruitful orchards, smiling gardens, and charming landscapes, which we shall leave to you! Welcome to these halls, whose walls have resounded so often with cordial greetings and friendly salutations; where thousands shall minister in the future at the altars of nature and of art, until perfection shall crown our tables, and gladden our sight, and we shall have exchanged the cultivation of the soil for the culture of the soul!

Welcome to its libraries and to all its privileges and pleasures! and when at last we shall relinquish our labors on earth, may we fall into the lap of mother earth, like the ripened fruits of summer, then to be welcomed to those celestial fields, and to that richer inheritance in the better land where the flower shall never fade, the leaf never wither, the fruit never perish; to the rewards of a well-spent life on earth, that we may partake of the tree which bears immortal fruit, — its bloom on earth, its fruit in heaven.

Massachusetts Horticultural Society.

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Surette, Louis A., Concord.
Swain, Charles D., Roxbury.

Taft, John B., Boston.
Tappan, Charles, "
Taylor, Horace B., "
Thacher, Alfred C., Dorchester.
Thayer, Henry, N. Cambridge.
Thayer, Nathaniel, Boston.
Thompson, S. Benton, "
Thurlow, Thomas C., Newburyport.
Tilton, Stephen W., Boston.
Todd, John, Hingham.
Tolman, Benjamin, Concord.
Tolman, Miss H. S., Boston.
Torrey, Everett, Charlestown.
Turner, John M., Dorchester.
Turner, Roswell W., Newton.
Turner, Royal W., Randolph.

Underwood, Guy C., Boston.
Upham, Henry, Brookline.

Vass, William J., Boston.
Vinton, A. H., D. D., Pomfret, Conn.
Vose, Benjamin C., Hyde Park.

Wainwright, Wm. L., Braintree.
Wakefield, E. H., Chelsea.
Walcott, Edward, Pawtucket.
Walcott, Henry P., Cambridge.
Walker, Edw. C. R., Dedham.
Walker, Samuel A., "
Walker, T. W., Waltham.
Walley, Mrs. W. P., Boston.

Ward, John,	Newton.	Whitmore, C. O.,	Boston.
Wardwell, W. H.,	" Centre.	Whittle, George W.,	Somerville.
Ware, Benjamin P.,	Beach Bluff.	Whytal, Thomas G.,	New York.
Warren, George W.,	Boston.	Wilbur, G. B.,	Watertown.
Wason, Elbridge,	Brookline.	Wilcutt, Levi L.,	West Roxbury.
Waters, Edwin F.,	Newton Centre.	Wilder, Henry A.,	Boston.
Waters, George F.,	Newton.	Wilder, Marshall P.,	Dorchester.
Watts, Isaac,	Belmont.	Williams, Aaron D.,	Boston.
Webber, Aaron D.,	Boston.	Williams, Benj. B.,	"
Weld, Aaron D.,	West Roxbury.	Williams, Philander,	Taunton.
Weld, Dr. Moses W.,	Boston.	Willis, George W.,	Chelsea.
Weld, Richard H.,	"	Willis, J. C.,	Boston.
Weld, William G.,	Brookline.	Wilson, Henry W.,	South Boston.
Weston, Leonard W.,	Lincoln.	Winship, F. Lyman,	Brighton.
Weston, Seth,	Revere.	Winship, Herman,	"
Wetherell, Leander,	Boston.	Woerd, Charles V.,	Waltham.
Wheelwright, A. C.,	"	Woerd, C. V., Jr.,	"
Whipple, John A.,	"	Wood, Luke H.,	Marlborough.
Whitcomb, Wm. B.,	Medford.	Wood, R. W.,	Jamaica Plain.
White, Benjamin C.,	Boston.	Wood, William K.,	West Newton.
White, Edward A.,	"	Woodward, Royal,	Brookline.
White, Francis A.,	Brookline.	Wright, George C.,	West Acton.
Whitely, Edward,	Cambridge.	Wrisley, Frank,	New York.
Whiting, Nathaniel,	Brookline.		

ANNUAL MEMBERS.

Abbott, S. L., M. D., Boston.
Adams, Chas. F., Quincy.
Adams, C. S., Framingham.
Allen, Andrew F., Arlington.
Allen, Calvin, Boston.
Allen, Nathaniel T., West Newton.
Ames, R. W., Boston.
Anderson, Charles J., Longwood.
Atkinson, Chas. M., Brookline.
Atkinson, Edward, "
Atkinson, W. B., Newburyport.

Bacon, Augustus, Boston.
Bacon, William, "
Bard, James, Framingham.
Barker, John G., Lynn.
Barnes, Parker, Dorchester.
Beard, Edward L., Cambridge.
Beebe, J. Arthur, Boston.
Bird, Charles, Revere.
Bird, John L., Dorchester.
Black, John A., Boston.
Bliss, B. K., New York.
Bolles, Matthew, Boston.
Bolles, William P., "
Bolton, John B., Somerville.
Boott, William, Boston.
Bradlee, John T., "
Breck, Charles H., Brighton.
Breck, Charles H. B., "
Brewer, Thomas M., Boston.
Brooks, George, Brookline.
Brown, A. S., Jamaica Plain.
Brown, Atherton T., Boston.
Brown, Benjamin F., Charlestown.
Brown, Jona., Jr., Somerville.
Brown, Joseph T., Boston.
Bryant, G. J. F., "
Bull, E. W., Concord.
Bullard, Calvin, Boston.
Burley, Edward, Beverly.
Burr, Charles C., Newton.
Butler, Edward, Wellesley.

Capen, Aaron D., Mattapan.
Carter, Maria E., Woburn.
Cartwright, James, Wellesley.
Chadbourne, M. W., Watertown.
Chaffin, John C., Newton.
Chapin, Gardner S., Arlington.
Chapin, George H., Watertown.
Chase, Mrs. C. B., Medford.
Chase, Henry L., Lynn.
Chase, Joseph S., Malden.
Cheney, Amos P., Natick.
Clark, James W., Framingham.
Clark, Joseph, Canton.
Clark, Joseph W., Dedham.
Cobb, Jonathan H., "
Coe, Henry F., West Roxbury.
Comley, James, Lexington.
Cooke, Henry C., West Newton.
Cox, James F., Abington.
Crafts, William A., Boston.
Cruickshanks, J. T., Natick.
Curtis, Daniel T., Boston.
Curtis, Joseph H., "
Cutter, George B., Weston.

Darling, Moses, Jr., South Boston.
Davis, Frederick, Newton.
Davis, James, Boston.
Davis, Thomas M., Cambridgeport.
Day, George B., Boston.
Dean, A. J., Boston.
Dolbear, Mrs. Alice J., Somerville.
Doogue, William, Boston.
Duffley, Daniel, Brookline.

Dupee, James A.,	Brookline.	Hamlin, Delwin A.,	South Boston.
Dyer, Mrs. E. D.,	Eyota, Minn.	Harris, Miss Ellen M.,	Jamaica Plain.
		Harris, Frederick L.,	South Natick.
Eaton, Jacob,	Cambridgeport.	Hartwell, Samuel,	Lincoln.
Edgar, William,	Newtonville.	Harwood, Geo. S.,	Newton.
Ewings, Luther B.,	Boston.	Haskell, Edward,	New Bedford.
		Hatch, Samuel,	Boston.
Falconer, John,	Rochester.	Hayes, John L.,	Cambridge.
Falconer, William,	Cambridge.	Hayward, Daniel H.,	No. Cambridge.
Farrier, Amasa,	Stoneham.	Hayward, Geo. P.,	Hingham.
Farrier, Mrs. C.,	"	Hazleton, H. L.,	Boston.
Fay, Henry G.,	Brookline.	Hersey, Alfred H.,	Hingham.
Felton, Arthur W.,	West Newton.	Hersey, Edmund,	"
Fenno, Warren,	Revere.	Heustis, Warren,	Belmont.
Fletcher, Edwin,	Acton.	Hews, Albert H.,	No. Cambridge.
Foster, Joshua T.,	Medford.	Higbee, Charles H.,	Salem.
Fowle, Henry D.,	Boston.	Hill, Benjamin D.,	Peabody.
French, William E.,	"	Hill, Miss Katie A.,	Lowell.
Frost, George,	West Newton.	Hinckley, Mrs. D. F.,	Chelsea.
Frost, Stiles,	" "	Howe, Rufus,	Marlborough.
Fuller, William G.,	Stoneham.	Hubbard, Joel W.,	Boston.
Gane, Henry A.,	West Newton.	Ireland, George W.,	Somerville.
Gardiner, Claudius B.,	Newburyport.		
Gardner, John,	Dedham.	Jameson, G. W.,	East Lexington.
Garfield, Charles,	Medford.	Jones, Moses,	Brookline.
Gaut, Samuel N.,	Somerville.	Jordan, Samuel,	Yarmouth.
Gilbert, John,	Boston.		
Gilbert, Samuel,	"	Kelsey, Fred W.,	Waverly, N. Y.
Gilbert, W. A.,	Neponset.	Kendall, Jonas,	Framingham.
Gill, Mrs. E. M.,	Medford.	Kennard, Martin P.,	Brookline.
Gleason, C. W.,	Boston.	Kenrick, Miss A. C.,	Newton.
Gleason, Herbert,	Malden.		
Godbold, G. A.,	Chelsea.	Lamprell, Simon,	Marblehead.
Goddard, Thomas,	Boston.	Lang, John H. B.,	Dorchester.
Goodwin, Lester,	Brighton.	Langmaid, S. P.,	Somerville.
Grant, Charles E.,	Boston.	Langworthy, I. P.,	Chelsea.
Graves, Frank H.,	West Newton.	Leavens, E. W.,	Malden.
Gray, Howard,	Dorchester.	Lee, Francis H.,	Salem.
Gray, John C.,	Boston.	Livermore, Miss M.,	Mt. Auburn.
Gray, William, Jr.,	Dorchester.	Loring, Charles G.,	Boston.
Gray, William, 3d,	"	Loring, John A.,	"
Grew, Henry,	"	Lothrop, David W.,	West Medford.
Guerineau, Louis,	Malvern, Ark.	Lothrop, H. A.,	Sharon.
		Lothrop, Thornton K.,	Boston.
Haley, Jesse,	Cambridgeport.	Lowell, John,	Newton.
Hall, William T.,	Revere.		

Markoe, G. F. H.,	Boston.	Richardson, E. P.,	Lawrence.
May, F. W. G.,	"	Richardson, Horace,	Framingham.
McDermott, Andrew,	"	Ridler, Charles E.,	Kingston.
McIntosh, A. S.,	"	Roberts, Edward,	Hyde Park.
McLaren, Anthony,	Forest Hills.	Rogers, John F.,	Cambridge.
Mellen, George M.,	Brookline.	Ross, Charles W.,	Newtonville.
Merrill, J. Warren,	Cambridgeport.	Russell, George,	Boston.
Merrill, S. A.,	Danvers.		
Minton, Peter J.,	Forest Hills.	Saunders, Miss M. T.,	Salem.
Morandi, Francis,	Malden.	Saville, George,	Quincy.
Morris, Thomas D.,	Boston.	Sawtell, J. M.,	Fitchburg.
Morrison, Hugh,	Bay View.	Schlegel, Adam,	Boston.
Morse, William A.,	Boston.	Scott, A. E.,	Lexington.
Morton, James H.,	"	Scott, George H.,	Allston.
Murray, Daniel D.,	Brookline.	Scudder, Samuel H.,	Cambridge.
Muzzey, Rev. A. B.,	Cambridge.	Shattuck, F. R.,	Boston.
		Shedd, Abraham B.,	Lexington.
Nightingale, Crawford,	Dorchester.	Shedd, Arthur B.,	"
Norton, Michael H.,	Boston.	Shepherd, C. W.,	West Newton.
Norton, Patrick,	"	Sheppard, Edwin,	Lowell.
Noyes, George N.,	Auburndale.	Sherman, Japhet,	Medford.
Nugent, James,	Boston.	Simpson, Michael H.,	Saxonville.
		Sleeper, John S.,	Boston.
O'Brien, James,	Jamaica Plain.	Snow, Eugene A.,	Melrose.
Oldreive, Richard,	Newton.	Southworth, Edward,	Quincy.
Olney, Richard,	West Roxbury.	Spooner, W. H.,	Jamaica Plain.
Owen, John,	Cambridge.	Sprague, Charles J.,	Boston.
		Squire, John P.,	Arlington.
Park, William D.,	Boston.	Starbird, Louis D.,	Malden.
Parker, Harvey D.,	"	Stevenson, Hamilton,	Woburn.
Parker, John,	"	Stone, Eliphalet,	Dedham.
Parsons, William,	"	Stone, Samuel G.,	Charlestown.
Patterson, James,	Cambridge.	Story, Miss Sarah W.,	Brighton.
Payson, Samuel R.,	Boston.	Sullivan, J. L. D.,	Somerville.
Pettingill, Thos. S.,	Brookline.	Swan, Charles W.,	Boston.
Phillips, Nathaniel,	Dorchester.		
Plimpton, W. P.,	West Newton.	Tailby, Joseph,	Wellesley.
Power, Charles J.,	S. Framingham.	Talbot, Josiah W.,	Norwood.
Pratt, L. G.,	West Newton.	Tapper, Thomas,	Canton.
Pratt, Mrs. Mary L.,	Hingham.	Tobey, Miss M. B.,	Brookline.
Pratt, Samuel,	Chelsea.	Todd, Jacob,	Boston.
Putnam, Charles A.,	Salem.	Torrey, Augustus,	Beverly.
Putnam, Henry W.,	"	Torrey, Bradford,	Boston.
		Tower, Elisha,	Lexington.
Randall, Macey,	Sharon.	Trautman, Martin,	Boston.
Ranlett, S. A.,	Melrose.	Turner, Nathaniel W.,	"
Richards, John S.,	Brookline.		

Underwood, Wm. J.,	Belmont.	Wheildon, Wm. W.,	Concord.
		White, Nelson B.,	Norwood.
Vandine, Henry,	Cambridgeport.	Whitney, Joel,	Winchester.
Vinton, Mrs. C. A.,	Boston.	Wilde, Hiram,	Randolph.
		Williams, Dudley,	Jamaica Plain.
Walker, Charles H.,	Chelsea.	Wilmarth, H. D.,	" "
Walker, Joseph T.,	Boston.	Wilson, B. Osgood,	Watertown.
Walker, Wm. P.,	Somerville.	Wilson, George W.,	Malden.
Washburn, E. Fred,	Neponset.	Wiswall, Henry M.,	Watertown.
Watson, David,	Malden.	Wolcott, Mrs. J. W.,	Boston.
Webster, John,	Salem.	Wood, Mrs. Anna D.,	West Newton.
Wellington, Chas. A.,	E. Lexington.	Wood, Miss C. S.,	" "
Wellington, Jos. V.,	Cambridge.	Wood, E. W.,	" "
Wells, Benjamin T.,	Boston.	Woodford, Jos. H.,	Newton.
Weston, Mrs. L. P.,	Danvers.		
Wheatland, Henry,	Salem.	Zirngiebel, Denys,	Needham.
Wheeler, Miss Ann C.,	Cambridgeport.		

EXTRACTS FROM THE BY-LAWS.

SECTION XXVI. — Life Members.

The payment of thirty dollars shall constitute a Life Membership, and exempt the member from all future assessments; and any member, having once paid an admission fee, may become a Life Member by the payment of twenty dollars in addition thereto.

SECTION XXVII. — Admission Fee and Annual Assessment.

Every subscription member, before he receives his Diploma, or exercises the privileges of a member, shall pay the sum of ten dollars as an admission fee, and shall be subject afterwards to an annual assessment of two dollars.

SECTION XXIX. — Discontinuance of Membership.

Any member who shall neglect for the space of two years to pay his annual assessment, shall cease to be a member of the Society, and the Treasurer shall erase his name from the List of Members.

The attention of Annual Members is particularly called to Section XXIX.

HONORARY MEMBERS.

A * denotes the member deceased. Correspondents of the Society and others will confer a favor by communicating to the Secretary information of the decease, change of residence, etc., of Honorary or Corresponding Members.

*Benjamin Abbott, LL. D., Exeter, N. H.
*John Abbott, Brunswick, Me.
*Hon. John Quincy Adams, LL. D., late President of the United States, Quincy.
*Prof. Louis Agassiz, Cambridge.
*William T. Aiton, late Curator of the Royal Gardens, Kew, England.
Thomas Allen, Ex-President of the St. Louis Horticultural Society, St. Louis, Mo., and Pittsfield, Mass.
*Hon. Samuel Appleton, Boston.
*Hon. James Arnold, New Bedford.
*Edward Nathaniel Bancroft, M. D., late President of the Horticultural and Agricultural Society of Jamaica.
*Hon. Philip P. Barbour, Virginia.
Don Angel Calderon de la Barca, Ex-Spanish Minister at Washington.
*Robert Barclay, Bury Hill, Dorking, Surrey, England.
*James Beekman, New York.
*L'Abbé Berlèse, Paris.
*Nicholas Biddle, Philadelphia.
*Dr. Jacob Bigelow, Boston.
*Mrs. Lucy Bigelow, Medford.
*Le Chevalier Soulange Bodin, late Secrétaire-Général de la Société d'Horticulture de Paris.
Hon. George S. Boutwell, Groton.
*Josiah Bradlee, Boston.
*Hon. George N. Briggs, Pittsfield.
*Hon. James Buchanan, late President of the United States, Lancaster, Penn.
*Jesse Buel, late President of the Albany Horticultural Society, Albany, N. Y.
*Hon. Edmund Burke, late Commissioner of Patents, Washington, D. C.
*Augustin Pyramus de Candolle, Geneva.
Hon. Horace Capron, Ex-U. S. Commissioner of Agriculture, Washington, D. C.
*Commodore Isaac Chauncey, U. S. Navy, Brooklyn, N. Y.

*Ward Chipman, late Chief Justice of New Brunswick, St. John.
*Lewis Clapier, Philadelphia.
*Hon. Henry Clay, Lexington, Ky.
H. W. S. Cleveland, Chicago, Ill.
*Admiral Sir Isaac Coffin, Bart., England.
*Zaccheus Collins, late President of the Pennsylvania Horticultural Society, Philadelphia.
*Roswell L. Colt, Paterson, N. J.
Caleb Cope, Ex-President of the Pennsylvania Horticultural Society, Philadelphia.
*William Coxe, Burlington, N. J.
*John P. Cushing, Watertown.
*Charles W. Dabney, late U. S. Consul, Fayal, Azores.
*Hon. John Davis, LL. D., Boston.
*Sir Humphry Davy, London.
*Gen. Henry Alexander Scammel Dearborn, Roxbury.
*James Dickson, late Vice-President of the London Horticultural Society.
*Mrs. Dorothy Dix, Boston.
*Capt. Jesse D. Elliot, U. S. Navy.
*Hon. Stephen Elliot, LL. D., Charleston, S. C.
*Hon. Henry L. Ellsworth, late Commissioner of Patents, Washington, D. C.
*Allyn Charles Evanson, late Secretary of the King's County Agricultural Society, St. John, N. B.
*Hon. Edward Everett, LL. D., Boston.
*Hon. Horace Everett, Vermont.
*F. Faldermann, late Curator of the Imperial Botanic Garden, St. Petersburg.
*Hon. Millard Fillmore, late President of the United States, Buffalo, N. Y.
*Dr. F. E. Fischer, late Professor of Botany at the Imperial Garden, St. Petersburg.
*Hon. Theodore Frelinghuysen, late President of the American Agricultural Society, New Brunswick, N. J.
*Joseph Gales, Jr., late Vice-President of the Horticultural Society, Washington, D. C.
*George Gibbs, New York.
*Stephen Girard, Philadelphia.
*Hon. Robert T. Goldsborough, Talbot County, Maryland.
*Ephraim Goodale, South Orrington, Maine.
*Mrs. Rebecca Gore, Waltham.
*Hon. John Greig, late President of the Domestic Horticultural Society, Canandaigua, N. Y.
*Mrs. Mary Griffith, Charlies Hope, N. J.
*Gen. William Henry Harrison, late President of the United States, North Bend, O.
*S. P. Hildreth, M. D., Marietta, O.
*Thomas Hopkirk, late President of the Glasgow Horticultural Society.
*David Hosack, M. D., late President of the New York Horticultural Society.

*Lewis Hunt, Huntsburg, O.

*Joseph R. Ingersoll, late President of the Pennsylvania Horticultural Society, Philadelphia.

*Gen. Andrew Jackson, late President of the United States, Nashville, Tenn.

*Mrs. Martha Johonnot, Salem.

*Jared Potter Kirtland, M. D., LL. D., East Rockport, O.

*Thomas Andrew Knight, late President of the Horticultural Society of London.

*Gen. La Fayette, La Grange, France.

*Le Comte de Lasteyrie, late Vice-President of the Horticultural Society of Paris.

L. A. H. Latour, M. P., 1396 St. Catherine Street, Montreal, Canada.

*Baron Justus Liebig, Giessen, Germany.

*Prof. John Lindley, late Secretary of the Horticultural Society of London.

Franklin Litchfield, U. S. Consul at Puerto Cabello, Venezuela.

*Joshua Longstreth, Philadelphia.

*Nicholas Longworth, Cincinnati.

*Jacob Lorillard, late President of the New York Horticultural Society.

*John C. Loudon, London.

Hon. John A. Lowell, Boston.

*Baron Charles Ferdinand Henry Von Ludwig, late Vice-President of the South African Literary and Scientific Institution, Cape Town, Cape of Good Hope.

*Hon. Theodore Lyman, Brookline.

Col. Theodore Lyman, Brookline.

*Hon. James Madison, late President of the United States, Montpelier, Va.

*Mrs. Charlotte Marryatt, Wimbledon, near London.

Joseph Maxwell, Rio Janeiro.

D. Smith McCauley, U. S. Consul-General, Tripoli.

*Hon. Isaac McKim, late President of the Horticultural Society of Maryland, Baltimore.

Rev. James H. Means, Dorchester, Mass.

*James Mease, M. D., Philadelphia.

*Lewis John Mentens, Brussels, Belgium.

*Hon. Charles F. Mercer, Virginia.

*François André Michaux, Paris.

Donald G. Mitchell, New Haven, Conn.

*Samuel L. Mitchill, M. D., LL. D., New York.

*Hon. James Monroe, late President of the United States, Oak Hill, Va.

*Alfred S. Monson, M. D., late President of the New Haven Horticultural Society, New Haven, Conn.

*Hon. A. N. Morin, Montreal, Canada.

*Théodore Mosselmann, Antwerp, Belgium.

Baron Osten Sacken, Secretary of the Russian Legation, Washington, D. C.

Baron Ottenfels, Austrian Minister to the Ottoman Porte.

John Palmer, Calcutta.
*Hon. Joel Parker, LL. D., Cambridge.
Samuel B. Parsons, Flushing, N. Y.
*Hon. Thomas H. Perkins, Brookline.
*A. Poiteau, late Professor in the Institut Horticole de Fromont.
*Hon. James K. Polk, late President of the United States, Nashville, Tenn.
*John Hare Powel, Powelton, Pa.
*Henry Pratt, Philadelphia.
*William Prince, Flushing, N. Y.
*Rev. George Putnam, D. D., Roxbury.
*Col. Joel Rathbone, late President of the Albany and Rensselaer Horticultural Society, Albany, N. Y.
*Archibald John, Earl of Roseberry, late President of the Caledonian Horticultural Society.
*Joseph Sabine, late Secretary of the Horticultural Society of London.
*Don Ramon de la Sagra, Havana, Cuba.
Henry Winthrop Sargent, Fishkill, N. Y.
*Sir Walter Scott, Abbotsford, Scotland.
*John Shepherd, late Curator of the Botanic Garden, Liverpool, England.
*John S. Skinner, late Editor of the American Farmer, Baltimore, Md.
George W. Smith, Boston.
*Stephen H. Smith, late President of the Rhode Island Horticultural Society.
*Hon. Charles Sumner, Boston.
*Hon. John Taliaferro, Virginia.
*Gen. James Talmadge, late President of the American Institute, New York.
*Gen. Zachary Taylor, late President of the United States, Baton Rouge, La.
*James Thacher, M. D., Plymouth.
John J. Thomas, Union Springs, N. Y.
*James W. Thompson, M. D., Wilmington, Del.
*Grant Thorburn, New York.
*M. Du Petit Thouars, Paris.
*Le Vicomte Hericart de Thury, late President of the Horticultural Society of Paris.
*Mons. Tougard, late President of the Horticultural Society of Rouen, France.
*Gen. Nathan Towson, late President of the Horticultural Society, Washington, D. C.
*Hon. John Tyler, late President of the United States, Williamsburg, Va.
*Rev. Joseph Tyso, Wallingford, England.
*Hon. Martin Van Buren, late President of the United States, Kinderhook, N. Y.
*Federal Vanderburg, M. D., New York.
*Jean Baptiste Van Mons, M. D., Brussels, Belgium.
*Gen. Stephen Van Rensselaer, Albany, N. Y.
*Joseph R. Van Zandt, Albany, N. Y.
*Benjamin Vaughan, M. D., Hallowell, Me.

*Petty Vaughan, London.
*Rev. N. Villeneuve, Montreal, Canada.
*Pierre Phillippe André Vilmorin, Paris.
*James Wadsworth, Geneseo, N. Y.
*Nathaniel Wallich, M. D., late Curator of the Botanic Garden, Calcutta.
*Malthus A. Ward, M. D., late Professor in Franklin College, Athens, Ga.
*Hon. Daniel Webster, Marshfield.
*Hon. John Welles, Boston.
*Jeremiah Wilkinson, Cumberland, R. I.
Hon. Robert C. Winthrop. Boston.
*Frederick Wolcott, Litchfield, Conn.
*Ashton Yates, Liverpool, England,
*Lawrence Young late President of the Kentucky Horticultural Society, Louisville.

CORRESPONDING MEMBERS.

A * denotes the members deceased.

*John Adlum, Georgetown, D. C.
Don Francisco Aguilar, U. S. Vice Consul, Maldonado, Banda Oriental del Uruguay.
*Mons. Alfroy, Lieusaint, France.
James T. Allan, Ex-President of the Nebraska State Horticultural Society, Omaha, Neb.
A. B. Allen, New York.
Rev. Thomas D. Anderson, New York.
*Thomas Appleton, late U. S. Consul at Leghorn, Italy.
*Col. Thomas Aspinwall, late U. S. Consul at London, Brookline.
P. M. Augur, State Pomologist, Middlefield, Conn.
*Isaac Cox Barnet, late U. S. Consul, Paris.
Patrick Barry, Chairman of the General Fruit Committee of the American Pomological Society, Rochester, N. Y.
*Augustine Baumann, Bolwiller, Alsace.
*Eugéne Achille Baumann, Rahway, N. J.
*Joseph Bernard Baumann, Bolwiller, Alsace.
Napoleon Baumann, Bolwiller, Alsace.
D. W. Beadle, St. Catherine's Ontario.
Prof. W. J. Beal, Lansing, Michigan.
*Noel J. Becar, Brooklyn, N. Y.
*Edward Beck, Worton College, Isleworth, near London.
Rev. Henry Ward Beecher, Peekskill, N. Y.
Louis Édouard Berckmans, Rome, Ga.
Prosper J. Berckmans, Augusta, Ga.
*Alexandre Bivort, late Secretary of the Société Van Mons, Fleurus, Belgium.
*Tripet Le Blanc, Paris.
*Charles D. Bragdon, Pulaski, Oswego Co., N. Y.
*William D. Brincklé, M. D., Philadelphia.
*George Brown, late U. S. Commissioner to the Sandwich Islands, Beverly.
*John W. Brown, Fort Gaines, Ga.
Dr. Nehemiah Brush, East Florida.
Arthur Bryant, Sr., Ex-President of the Illinois State Horticultural Society, Princeton, Ill.
Robert Buist, Philadelphia.
*Dr. E. W. Bull, Hartford, Conn.
William Bull, Chelsea, England.
Rev. Robert Burnet, President of the Ontario Fruit Growers' Association, Hamilton, Canada West.

Alexander Burton, United States Consul, Cadiz, Spain.
Isidor Bush, Bushberg, Jefferson Co., Mo.
George W. Campbell, Delaware, Ohio.
*Francis G. Carnes, New York.
*Col. Robert Carr, Philadelphia.
*Rev. John O. Choules, D.D., Newport, R. I.
*Rev. Henry Colman, Boston.
*James Colvill, Chelsea, England.
Benjamin E. Cotting, M. D., Boston.
*Samuel L. Dana, M. D., Lowell.
J. Decaisne, Professeur de Culture au Musèum d' Histoire Naturelle, Jardin des Plantes, Paris.
*James Deering, Portland, Me.
*H. F. Dickehut.
*Sir C. Wentworth Dilke, Bart., London.
*Hon. Allen W. Dodge, Hamilton.
Rev. H. Honywood D'Ombrain, Westwell Vicarage, Ashford, Kent, England.
*Andrew Jackson Downing, Newburg, N. Y.
Charles Downing, Newburg, N. Y.
Parker Earle, Cobden, Ill.
*F. R. Elliott, late Secretary of the American Pomological Society, Cleveland, O.
George Ellwanger, Rochester, N. Y.
George B. Emerson, LL. D., Winthrop.
*Ebenezer Emmons, M. D., Williamstown.
*Andrew H. Ernst, Cincinnati, O.
*Nathaniel Fellows, Cuba.
*Henry J. Finn, Newport, R. I.
*W. C. Flagg, late Secretary of the American Pomological Society, Moro, Ill.
*Michael Floy, late Vice-President of the New York Horticultural Society, New York City.
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*Hon. Russell Freeman, Sandwich.
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